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U. S. DEPT. OF AGRICULTURE  
NATIONAL FOREST SERVICE

PROCUREMENT SECTION  
CURRENT SERIAL RECORDS

✓  
U.S. Department of Agriculture  
**1972 BUDGET**  
EXPLANATORY NOTES

**FOREST SERVICE**





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## FOREST SERVICE

### Purpose Statement

The Forest Service is responsible for promoting the conservation and wise use of the country's forest and related watershed lands, which comprise one-third of the total land area of the United States. To meet its responsibility the Forest Service engages in three main lines of work, as follows:

1. Management, protection, and development of the National Forests and National Grasslands. The 154 National Forests and 19 National Grasslands are managed under multiple use and for sustained yield. Under these principles natural resources of outdoor recreation, range, timber, watershed, and wildlife are utilized in a planned combination that will best meet the needs of the Nation without impairing the productivity of the land.

Direct as well as generated employment for rural residents contribute to community development and to environmental protection and improvement. Gross area within unit boundaries encompasses about 226 million acres in 44 States and Puerto Rico, of which some 187 million acres are under Forest Service administration.

In managing the National Forests, technical forestry is applied to the growing and harvesting of timber crops. Grazing use is managed to obtain proper range conservation along with utilization of the annual growth of forage. Watersheds are managed to regulate stream flow, prevent floods, and provide water for power, irrigation, navigation, and municipalities.

Management includes the development, maintenance, and protection of sites and facilities for the millions of people who visit the National Forests each year for recreation purposes. Emphasis is given to protecting scenic quality while at the same time assuring availability for forest users. Wildlife habitat is managed to provide a suitable land and water environment for both game and non-game wildlife.

Under the multiple use principles most areas are used for, or serve, more than one purpose or objective. For example, about 50 percent of the area within the National Forests serves five different purposes:

- (a) Timber production
- (b) Watershed protection
- (c) Forage production
- (d) Wildlife production
- (e) Recreation

An additional 28 percent serves four purposes in varying combinations. Of the remainder, 21 percent of the total serves three purposes with only 1 percent of the total reserved exclusively for a single purpose, mainly campgrounds and special use areas, such as summer homesites, pastures, and corrals.

The varied interests which frequently conflict and which must be reconciled, and the vast areas covered, clearly require careful planning and skillful management of the National Forest properties to most effectively serve the Nation's people.

The protection of the National Forests includes the control of forest fires, the control of tree disease and insect epidemics, and the prevention of trespass.

The major development activities of the National Forests are reforestation; timber stand improvement; revegetation; construction of roads, recreational facilities, range and other necessary improvements; and land acquisition and exchanges. Each of these activities contributes to the local economy and in many areas serves to improve incomes of the rural poor.



The economic importance of the National Forests and National Grasslands is evident when it is considered that:

- (a) They produced a cash income in fiscal year 1970 of over \$299.7 million. Approximately 65 percent of this amount is credited to the general fund in the Federal Treasury (miscellaneous receipts). The remainder is distributed in accordance with special acts of Congress, including 25 percent to the States or counties in which lands are located, and 10 percent made available for construction and maintenance of the Forest Service system of roads and trails. In addition to these cash receipts, there are the even greater economic values which result from the processing of end products derived from this utilization of National Forest timber, forage, and minerals. Recreation, wildlife and water result in important economic activity in local, State, and national economies. There are also important intangible values of water, recreation, and wildlife such as the esthetic enjoyment of natural beauty.
  - (b) The area within National Forests boundaries is equivalent to some 10 percent of the area of the continental United States. Over 40 percent of this land is within areas now experiencing economic distress. Proper management, development, and utilization of these lands are important factors in permanent improvement of these local economies. Millions of people who live in and near the National Forests are supported in whole or in part through the economic development arising from the forests and their resources. These resources offer the most favorable basis for developing prosperous and vigorous local economies and communities.
  - (c) The National Forests supplied 11.5 billion board feet of timber in fiscal year 1970 to the Nation's forest products industries. This is expected to increase to 13.4 billion board feet in 1971. Dependence of the forest products industries on National Forest timber continues to increase as the result of depletion of good quality timber on private lands. In some areas, the dependence of local industry on National Forest timber is almost 100 percent. Without this supply some small communities could not exist.
  - (d) About 7.2 million head of domestic livestock (including calves and lambs) are grazed on the National Forests and Grasslands. In many local areas this is a major industry. Without such Federal rangelands the economic activity would be drastically curtailed from currently depressed levels.
  - (e) These lands provide protection to municipal water supplies for nearly all western cities and towns and many in the East, to irrigation water used on about 20 million acres of western lands, and to many streams with water power developments. They provide flood protection to thousands of acres of rich valley lands and help to prevent more rapid siltation of reservoirs and stream channels. A dependable water supply is an important prerequisite for economic and community development.
  - (f) They provide a habitat for a large part of the big game animal population, for birds, for millions of small game animals and furbearers, and for fish. Hunting and fishing constitute an important supplementary source of income for numerous communities, many of which are economically depressed.
  - (g) They provide opportunities for healthful outdoor recreation, with a minimum of restrictions. Outdoor recreation is an important source of supplementary income in most areas as well as providing recreational opportunities for local residents. In some relatively depressed communities it becomes even more important.
2. Forestry research. The Forest Service conducts research in the entire field of forestry and the management of forest and related ranges. This includes the growth and harvesting of timber, its protection from fire, insects, and diseases, the protection and management of watersheds, and improved methods for development





and management of recreation resources. It conducts studies in forest economics, marketing of forest products, and a survey of the present extent and potential growth and use of the Nation's forest resources. It also conducts research to develop new and improved products from wood, to increase efficiency of utilizing forest products, and to advance the efficiency and mechanization of forestry operations.

The research program has a two-fold objective:

- (a) To backstop the National Forest development program by devising more efficient practices for protecting, managing, and utilizing forest resources.
- (b) To develop new and improved practices that will lead to sounder uses of forests in other public and private ownerships and more efficient and profitable utilization and marketing of forest products.

Results of research are made available to owners of private forest and range-lands, to public agencies which administer such lands, to forest product industries, and to consumers. Research in the growing, harvesting, processing, and marketing of forest products results in increased competitiveness for forest products. Contribution of the forest resource to the economic and social welfare is made more effective. Research in the management of resources for water, forage, wildlife, and recreation has similar effects as a basis for community development and satisfaction of national demands.

3. Cooperation with State and private forest landowners. The Forest Service cooperates with State agencies and private owners to improve management of non-Federal forest lands. Technical help is also provided by the Forest Service in cooperation with the State agencies to the processors of forest products. Opportunities exist for greatly increasing the contribution of these lands to social and economic welfare of the Nation as a whole and more particularly through rural development and outreach activities in rural America to improve the economic levels, employment opportunities, and general welfare of the people living in these areas. Specific programs are designed to:

- (a) Better protect the 519 million acres of State and privately owned forests and critical watersheds against fires, insects, and diseases.
- (b) Encourage better forest practices, for resource conservation, betterment, and profit, on the 395 million acres of non-Federal forest land.
- (c) Aid in the distribution of planting stock for forests, shelterbelts, and wood lots.
- (d) Assist the harvesters, processors, and marketers of forest products in doing a better job and thereby bring about greater use of forest products and increased income and employment for rural people.
- (e) The Forest Service also provides assistance to States for tree planting, reforestation, and tree improvement under Section 401 of the Agricultural Act of 1956 (16 USC 568e-568g), through the State forester or equivalent State official, including advice, technical assistance, and financial contributions, in accordance with plans submitted by the State and approved by the Secretary of Agriculture.
- (f) Provide assistance to local communities in planning and development of new and greater opportunities for creative and satisfying living, work, and recreation in rural America.

Other work related to forestry includes:

4. Insect and disease control. Activities to suppress and control destructive insects and diseases that threaten timber areas include two types of work carried on jointly by Federal, State, and private agencies.





(a) Surveys on forest lands to detect and evaluate infestations of forest insects and infections of tree diseases and determination of protective measures to be taken.

(b) Control operations to suppress or eradicate forest insects and diseases, including white pine blister rust in a manner that does not impair the quality of our environment.

5. Flood prevention and watershed protection. The Forest Service cooperates with the Soil Conservation Service, appropriate State agencies and the local organizations sponsoring small watershed protection projects initiated under the Watershed Protection and Flood Prevention Act of 1954 (16 USC 1001-1007) in planning and installing forestry and related land resource measures on the watersheds. The Forest Service also collaborates with the Soil Conservation Service, other Federal and State agencies in the conduct of comprehensive river basin studies relating to the development of water and related land resources under authority of the Water Resources Planning Act (42 USC 1962) and 16 USC 1006 mentioned above. Such studies can form part of the basis of plans for regional and community economic development.

On National Forest lands and on non-Federal forest lands within the watersheds authorized for treatment by the Department of Agriculture under the Flood Control Act (33 USC 701), the Forest Service plans and installs watershed improvement measures, in the form of minor physical structures, cultural measures, and intensified fire control, to retard runoff and reduce flood water and sediment damage. Work on non-Federal land is carried on in cooperation with the Soil Conservation Service and the appropriate State and local agencies.

The Forest Service cooperates with the Soil Conservation Service and other Federal, State, and local agencies or groups in the emergency treatment of watersheds impaired by fire or other similar disasters to prevent the loss of life or serious flood and sediment damages. This work is performed under the authority of Section 216 of the Flood Control Act of 1950 (33 USC 701b-1) with funds allotted to the Forest Service by the Soil Conservation Service. This section of the Act provides that not more than \$300,000 of the regular appropriations for Flood Prevention may be expended during any one fiscal year for emergency measures.

Generally, this work is performed with funds allotted to the Forest Service by the Soil Conservation Service. Forest Service funds are used to finance land treatment and certain other measures on small watershed projects located on National Forest lands.

6. Job Corps Civilian Conservation Centers. The Forest Service operates 20 Job Corps Civilian Conservation Centers on National Forests throughout the United States under agreement with the Department of Labor. The Forest Service provides the staffing, administration and logistical support to physically operate and maintain the Centers and conduct the basic education, plan and supervise the recreation, and fully implement the vocational training of corpsmen. The funds for this program are transferred from Department of Labor. There are 41 to 60 permanent staff assigned to each Center based upon enrollee capacity of 112 to 224. Total capacity of all Centers is 3,848 corpsmen and Centers operate on a 24-hour, seven-day week basis. Both human and natural resources are being upgraded through these Civilian Conservation Centers, as young men improve their education and job skills in preparation for a more productive life.
7. Timber stand improvement. Funds collected from timber purchasers in connection with timber sales, under authority of the Knutson-Vandenberg Act, make possible some timber stand improvement work on cut-over areas each year looking to the establishment of natural tree growth and protecting it through the critical period of early growth. This work also helps to obtain stocking of trees of



desirable species, form and quality. Timber stand improvement in promoting young growth not associated with timber sale cuttings is done with funds directly appropriated by Congress.

8. Brush disposal. National Forest timber sale contracts require treatment of debris from cutting operations or deposit of funds to pay for the work. If it is not feasible for the timber purchaser to dispose of the logging slash, which is the case in most sales, it is done by the Forest Service using deposits made by the purchaser. This work is essential because logging slash increases the fire hazard and may contribute to the buildup of insect populations, increase certain disease infestations, and cause damage to stream channels.
9. Land and Water Conservation Fund. This fund, transferred from the appropriation made to the Department of the Interior, finances the acquisition of lands, waters, or interests in lands or waters by the Forest Service as well as certain other Federal agencies. The Act creating the fund from which appropriations are made requires that the lands and waters acquired be primarily of value for outdoor recreation. Means are provided for expanding outdoor recreation opportunities and protecting and improving environmental quality including natural beauty. The fund derives revenues from admission and user fees, sales of surplus real property, and motor boat fuel tax. The first purchase of recreation land made by the Forest Service was on October 19, 1965.
10. Rural fire defense. The Forest Service, as a part of its regular programs, also directs Federal activities and provides technical guidance and training to States concerned with the prevention and control of fires which might be caused by an enemy attack or a nuclear accident in rural areas of the United States.
11. Appalachian regional development program. Under the Appalachian Regional Development Act (40 USC app. 204), the Forest Service provides technical assistance to timber development organizations to improve development and utilization of timber stands in the Appalachian region. Regional and community development is encouraged and assisted with attendant progress in eliminating rural poverty. The funds for this program are transferred from the Appalachian Regional Development Commission.

#### ORGANIZATIONAL STRUCTURE

The Forest Service maintains its central office in Washington with program activities decentralized to 9 regional offices, 129 forest supervisors' offices, 760 district rangers' offices, 2 State and private forestry area offices, 8 forest and range experiment stations, the Institute of Tropical Forestry, and the Forest Products Laboratory. Location of headquarters offices:

Regional Offices:	Missoula, Montana	Portland, Oregon
	Denver, Colorado	Atlanta, Georgia
	Albuquerque, New Mexico	Milwaukee, Wisconsin
	Ogden, Utah	Juneau, Alaska
	San Francisco, California	

State and private forestry area offices: Upper Darby, Pennsylvania  
Atlanta, Georgia

Experiment stations:	Ogden, Utah	Berkeley, California
	St. Paul, Minnesota	Fort Collins, Colorado
	Upper Darby, Pennsylvania	Asheville, North Carolina
	Portland, Oregon	New Orleans, Louisiana

Forest Products Laboratory: Madison, Wisconsin

Institute of Tropical Forestry: Rio Piedras, Puerto Rico



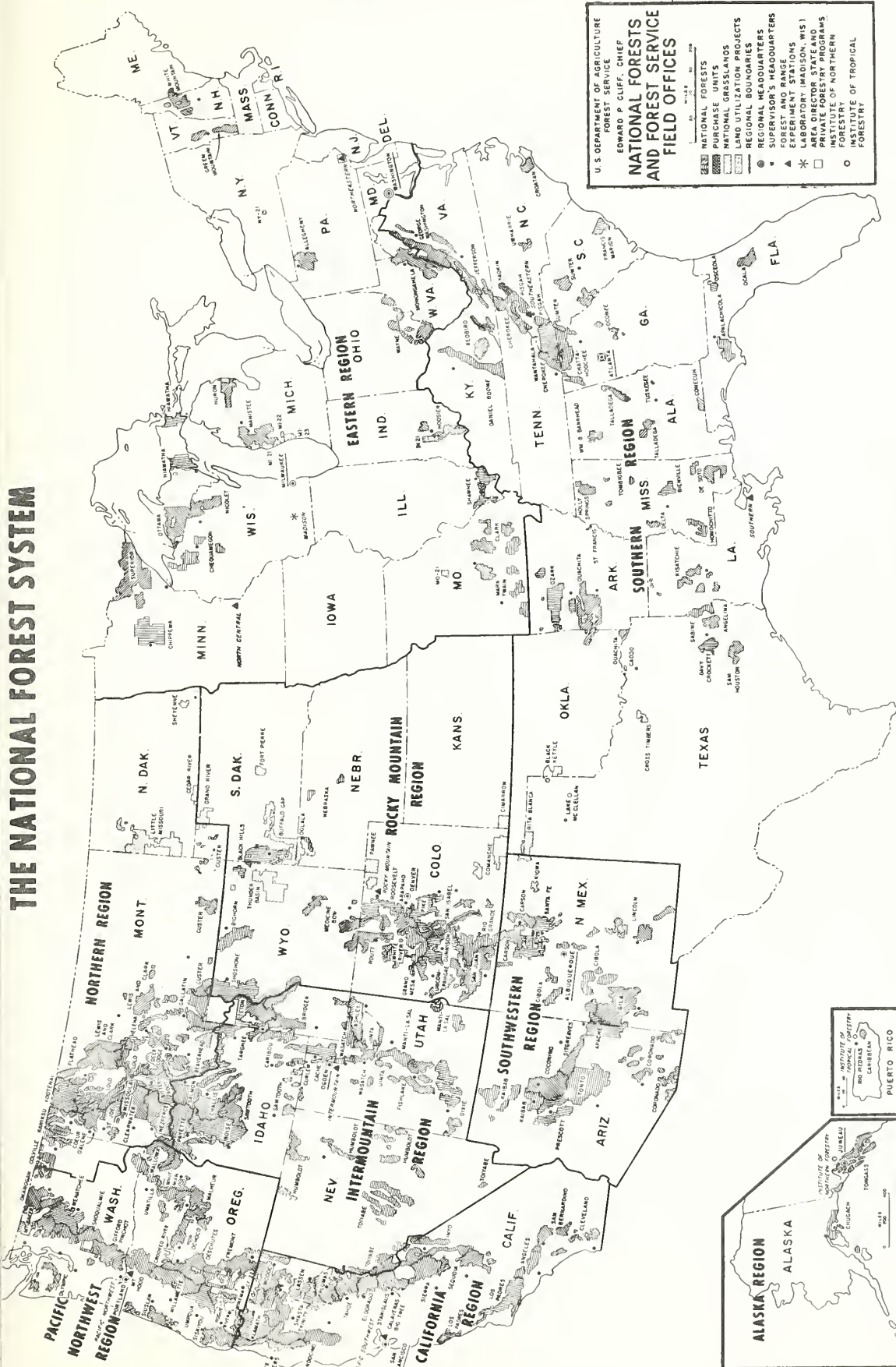


National Forest, National Grasslands, and Utilization lands administered by the Forest Service are located in all States except the following six:

Delaware  
Hawaii  
Maryland  
Massachusetts  
New Jersey  
Rhode Island



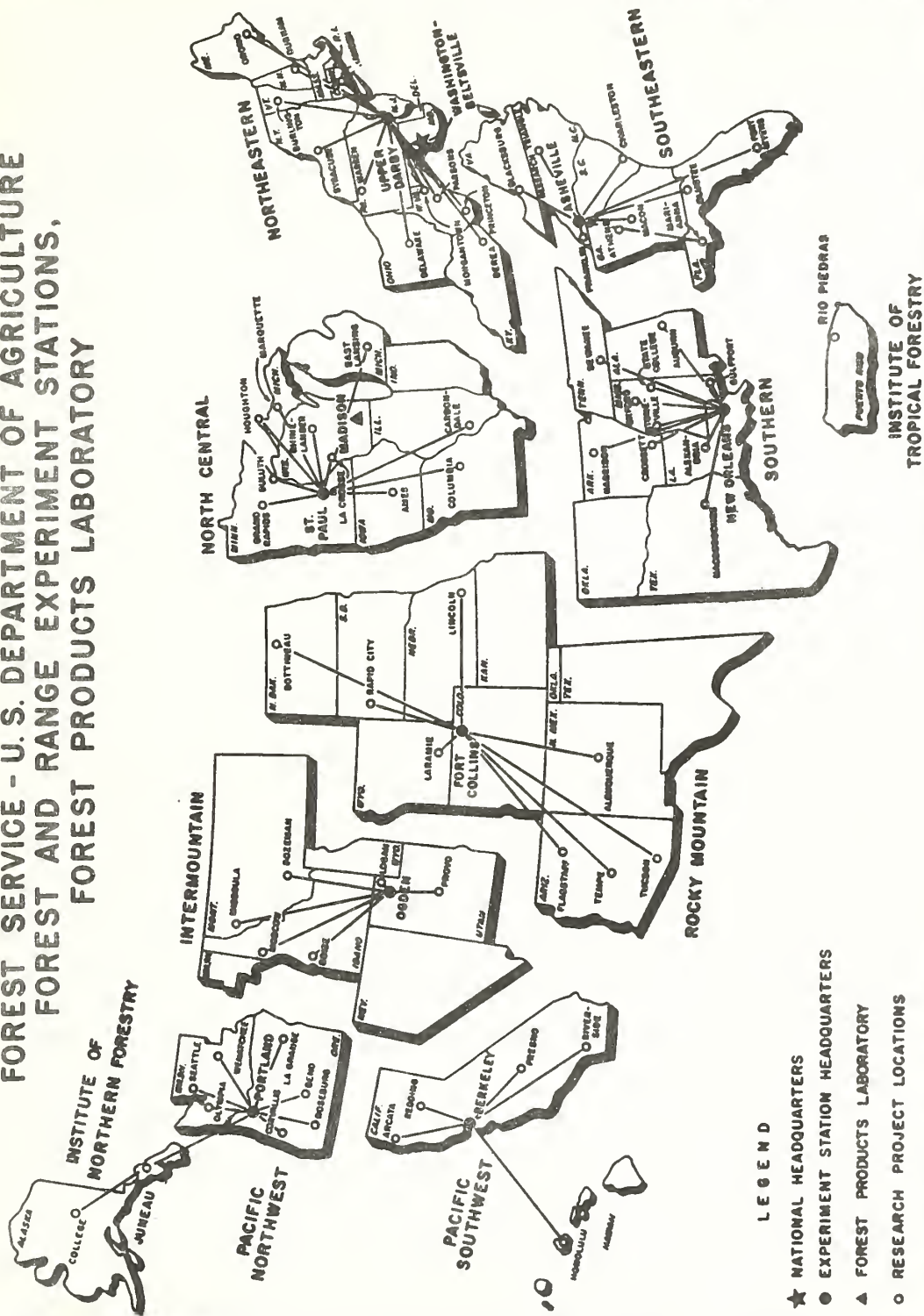
# THE NATIONAL FOREST SYSTEM







# FOREST SERVICE - U.S. DEPARTMENT OF AGRICULTURE FOREST AND RANGE EXPERIMENT STATIONS, FOREST PRODUCTS LABORATORY





# Summary of Estimated Appropriations and Receipts

Page No.	Item	Available 1970 1/	Estimated Available 1971 2/	Budget Estimates 1972	Increase or Decrease :1972 over 1971
	<u>Appropriated Funds</u>				
	Forest protection and utilization:				
19	Forest land management	\$226,705,000	\$207,147,000	\$225,118,000	+\$17,971,000
72	Forest research	45,590,000	47,805,000	47,668,000	-137,000
101	State and private forestry cooperation	22,910,000	24,081,000	24,067,000	-14,000
	Total, Forest protection and utilization	295,205,000	279,033,000	296,853,000	+17,820,000
111	Construction and land acquisition	-	15,819,700	24,912,000	+9,092,300
131	Forest roads and trails 3/	100,570,000	115,000,000	135,300,000	+20,300,000
135	Acquisition of lands for National Forests, Special Acts	80,000	80,000	80,000	-
137	Acquisition of lands to complete land exchanges	700,000	700,000	700,000	-
130	Cooperative range improvements	1,000,000	1,013,000	1,013,000	-
138	Assistance to States for tree planting 3/	-	2,500,000	-	-2,500,000
140	Youth conservation corps	-	-	-	-
	<u>Permanent Appropriations</u>				
150	Expenses, brush disposal 3/	12,776,558	12,800,000	14,000,000	+1,200,000
149	Roads and trails for States, National Forests Fund	31,206,198	28,761,091	32,760,000	+3,998,909
152	Forest fire prevention 3/	108,568	133,000	135,000	+2,000
153	Restoration of forest lands and improvements 2/	28,461	30,000	50,000	+15,000
154	Payment to Minnesota (Cook, Lake, and St. Louis Counties) from the National Forests Fund	257,955	258,006	265,000	+6,994
155	Payments to counties, National Grasslands	505,888	512,500	512,500	-
156	Payments to school funds, Arizona and New Mexico	124,709	84,338	100,000	+15,662
157	Payments to States, National Forests Fund	78,012,921	71,896,615	81,891,000	+9,994,385
	Total	520,576,258	528,626,250	588,597,535	+59,971,285
	Deduct permanent appropriations shown above	123,021,258	114,480,550	129,713,500	+15,232,950
	Total (excluding permanent appropriations)	397,555,000	414,145,700	458,884,035	+44,738,335
	<u>Receipts 4/</u>				
	Timber sales	\$283,912,394	\$322,320,000	\$351,900,000	+\$29,580,000
	Grazing	3,771,663	3,850,000	5,000,000	+1,150,000
	Power	193,377	200,000	220,000	+20,000
	Recreation	2,982,512	3,500,000	4,000,000	+500,000
	Land uses	835,576	900,000	975,000	+75,000
	Mineral leases and permits	4,801,422	5,500,000	6,000,000	+500,000
	Admission and user fees	1,157,414	1,500,000	1,750,000	+250,000
	National grasslands and land utilization	2,048,848	2,050,000	2,050,000	-
	Total receipts	299,703,206	339,820,000	371,895,000	+32,075,000

(Footnotes on next page)





# Summary of Estimated Appropriations and Receipts--continued

1/ Includes: \$10,266,000 made available pursuant to provisions of House Joint Resolution 1232 (PL 91-257, 5/19/70) for increased pay costs; Second Supplemental Appropriations Act, 1970 (PL 91-305, 7/6/70)--\$21 million for fighting forest fires, \$172,000 for recreation-public use, and transfer of \$5,373,000 from other accounts for increased pay costs; also includes \$1 million of trust funds used for fighting forest fires repaid in fiscal year 1971 and transfer of \$13,000 from Rural Community Development Services.  
Excludes GSA space transfers of \$295,000.

2/ Includes following proposed supplemental for increased pay costs:

## Proposed Supplemental

### Forest Protection and Utilization:

Forest land management .....	\$7,800,000
Forest research .....	+2,120,000
State and private forestry cooperation .....	+142,000
Total .....	<u>10,062,000</u>
Assistance to States for Tree Planting .....	13,000

Excludes following: GSA space transfers of \$434,000 (Forest land management, \$420,000 and Forest research, \$14,000) and proposed supplemental for fighting forest fires of \$68 million.

3/ In addition, prior year balances are available.

4/ Amounts include:

	<u>1970</u>	<u>1971</u>	<u>1972</u>
Suspense account, Alaska <u>a/</u> .....	\$4,208,977	\$4,500,000	\$4,500,000
Suspense account, O&C lands <u>b/</u> .....	9,884,508	10,000,000	10,000,000

a/ Account established pending settlement of Indian rights on Tongass National Forest, Alaska.

b/ Account established for Oregon and California railroad grant lands, for which receipts are transferred to Department of the Interior for distribution under the Acts of August 28, 1937, June 24, 1954, and August 3, 1961 (43 USC 1181f-g).



# JOB CORPS CIVILIAN CONSERVATION CENTERS

(Funds transferred to Forest Service by Department of Labor)

	Available 1970			Estimate 1971			Estimate 1972		
	No. of : Permanent : Positions	Amount (in thousands)	: Positions	No. of : Permanent : Positions	Amount (in thousands)	: Positions	No. of : Permanent : Positions	Amount (in thousands)	: Positions
Center readiness .....	- -	\$3,199	- -	- -	\$1,618	- -	- -	\$2,000	- -
Center operation .....	987	22,461	992	992	21,910	992	992	24,269	992
Program direction and training .....	144	2,040	139	139	1,920	139	139	2,102	139
Total .....	1,131	27,700	1,131	1,131	25,448	1,131	1,131	28,371	1,131

NOTE: Fiscal years 1971 and 1972 estimates are based on best information available to the Forest Service as of January 20, 1971.









# FOREST SERVICE

## Forest Protection and Utilization

	Forest Land Management	Forest Research	State and Private	
			Forestry Cooperation	Total
Appropriation Act, 1971 .....	\$199,767,000 a/	\$45,699,000	\$23,939,000	\$269,405,000
Budget estimate, 1972 .....	225,118,000	47,668,000	24,067,000	296,853,000
Increase in appropriation .....	+25,351,000	+1,969,000	+128,000	+27,448,000
Adjustments to 1971 appropriation:				
Appropriation Act, 1971 .....	199,767,000 a/	45,699,000	23,939,000	269,405,000
Transfer to General Services Administration for rental of space .....	-420,000	-14,000	- -	-434,000
Proposed supplemental for pay costs .....	+7,800,000	+2,120,000	+142,000	+10,062,000
Adjusted appropriation .....	207,147,000	47,805,000	24,081,000	279,033,000
Budget estimate, 1972 .....	225,118,000 a/	47,668,000	24,067,000	296,853,000
Increase in 1972 program level .....	+17,971,000	-137,000	-14,000	+17,820,000

a/ In addition, \$700,000 is available by transfer from Cooperative Range Improvements.

## SUMMARY OF INCREASES AND DECREASES

(On basis of adjusted appropriation)

	<u>1971 Available</u>	<u>1972 Estimate</u>	<u>Increase or decrease</u>
<u>Forest land management:</u>			
Timber sales administration and management--To increase harvest in the regular timber sale program by 370 million board feet (\$2,880,000); for increased costs of inventory and management plan preparation (\$980,000); to increase regular timber sale preparation (\$2,851,000) .....	\$54,453,000	\$61,164,000	+\$6,711,000
Reforestation and stand improvement--To accelerate the total net timber growth for the National Forests and increase the long-term sustainable harvest .....	19,907,000	27,075,000	+7,168,000
Recreation-public use--To more intensively administer fee program under Land and Water Conservation Fund Act; to reduce vandalism; to maintain operation, cleanup, and sanitation services for increased recreation use; to comply with E.O. 11507 (Air and Water Pollution Control at Federal Facilities) and E.O. 11514 (Protection and Enhancement of Environmental Quality) .....	36,530,000	38,697,000	+2,167,000





SUMMARY OF INCREASES AND DECREASES--continued

	1971 <u>Available</u>	1972 <u>Estimate</u>	Increase or decrease
<u>Forest land management--continued:</u>			
<u>Wildlife habitat management--To coordinate wildlife needs with other resource activities (\$200,000) and for habitat restoration and development (\$900,000) .....</u>	\$4,843,000	\$5,943,000	+\$1,100,000
<u>Soil and water management--To provide higher quality land and resource management on National Forest System lands and additional job opportunities in areas of underemployment .....</u>	6,596,000	8,796,000	+2,200,000
<u>Payments to Employees' Compensation Fund--To increase amount needed to reimburse Employees' Compensation Fund .....</u>	1,459,000	1,622,000	+163,000
<u>Insect and disease control--Increase of \$140,000 (1) to protect the environment on 100,000 acres of hardwood forests in the Northeastern and Central States from depredation caused by defoliating insects such as cankerworms, leaf rollers, and gypsy moths, and (2) to treat critically infested high-value conifer stands on the National Forests with Zectran to control spruce budworm outbreaks; decrease of \$1,500,000 for nonrecurring purchase of Zectran .....</u>	11,610,000	10,250,000	-1,360,000
<u>Mineral claims, leases, and special uses--Decrease to provide funds for higher priority Forest Service programs .....</u>	5,034,000	4,884,000	-150,000
<u>Forest fire protection--Decrease due to reduction in public relations activities .....</u>	30,333,000	30,305,000	-28,000
<u>All other Forest land management:</u>			
Range management .....	6,940,000	6,940,000	-
Range revegetation .....	3,339,000	3,339,000	-
Range improvements .....	3,811,000	3,811,000	-
Land classification, adjustments and surveys .....	7,089,000	7,089,000	-
Maintenance of improvements for fire and general purposes (including communications) .....	7,230,000	7,230,000	-
Water resource development related activities .....	3,698,000	3,698,000	-
Fighting forest fires .....	4,275,000	4,275,000	-
Subtotal, Forest land management .....	207,147,000	225,118,000	+17,971,000
<u>Forest research:</u>			
<u>Watershed management research --Decrease on flood and repair work on Beaver Creek Experimental Area .....</u>	4,732,000	4,624,000	-108,000
<u>Decreases due to reduction in public relations activities:</u>			
Timber management research .....	10,963,000	10,943,000	-20,000
Forest products utilization research .....	8,579,000	8,570,000	-9,000



**SUMMARY OF INCREASES AND DECREASES--continued**

	<u>1971</u>	<u>1972</u>	<u>Increase or</u>
	<u>Available</u>	<u>Estimate</u>	<u>decrease</u>
<b>Forest research--continued:</b>			
<b>All other Forest research:</b>			
Range management research .....	\$1,497,000	\$1,497,000	-
Wildlife habitat research .....	1,401,000	1,401,000	-
Forest recreation research .....	1,019,000	1,019,000	-
Forest and atmospheric science research .....	3,988,000	3,988,000	-
Forest insect research .....	4,998,000	4,998,000	-
Forest disease research .....	2,954,000	2,954,000	-
Forest engineering research .....	1,130,000	1,130,000	-
Forest survey .....	3,266,000	3,266,000	-
Forest products marketing research .....	1,943,000	1,943,000	-
Forest economics research .....	1,335,000	1,335,000	-
Subtotal, Forest research .....	47,805,000	47,668,000	-137,000

**State and private forestry cooperation:**

**Decreases due to reduction in public relations activities:**

Cooperation in forest fire control .....	16,505,000	16,494,000	-11,000
Cooperation in forest management and processing .....	4,973,000	4,970,000	-3,000

**All other State and private forestry cooperation:**

Cooperation in forest tree planting .....	319,000	319,000	-
General forestry assistance .....	2,284,000	2,284,000	-
Subtotal, State and private forestry cooperation .....	24,081,000	24,067,000	-14,000
Total .....	279,033,000	296,853,000	+17,820,000





# PROJECT STATEMENT

Project	1970	1971	1972	Increase or decrease
<b>FOREST LAND MANAGEMENT:</b>				
<b>National Forest protection and management:</b>				
(1) Timber resource management:				
(a) Sales administration and management	1/ \$47,470,091	\$54,453,000	\$61,164,000	+\$6,711,000
(b) Reforestation and stand improvement	15,331,215	19,907,000	27,075,000	+7,168,000
(2) Recreation-public use	2/ 40,837,382	1/ 36,530,000	38,697,000	+2,167,000
(3) Wildlife habitat management	4,406,687	4,843,000	5,943,000	+1,100,000
(4) Range resource management:				
(a) Management	7,561,325	6,940,000	6,940,000	-
(b) Revegetation	2,750,206	3,339,000	3,339,000	-
(c) Improvements	3,476,138	4,511,000	4,511,000	-
(5) Soil and water management	6,857,516	6,596,000	8,796,000	+2,200,000
(6) Mineral claims, leases, and special uses	5,610,479	5,034,000	4,884,000	-150,000
(7) Land classification, adjustments, and surveys	3/ 7,221,587	7,089,000	7,089,000	-
(8) Forest fire protection	28,242,977	30,333,000	30,305,000	-28,000
(9) Maintenance of improvements for fire and general purposes (including communications)	2/ 11,260,499	7,230,000	7,230,000	-
(10) Payments to Employees' Compensation Fund	1,100,209	1,459,000	1,622,000	+163,000
Subtotal	182,126,311	188,264,000	207,595,000	+19,331,000
Amount advanced from Cooperative Range Improvements	-700,000	-700,000	-700,000	-
Subtotal, National Forest protection and management	181,426,311	187,564,000	206,895,000	+19,331,000
(11) Water resource development related activities	2/ 6,750,770	3,698,000	3,698,000	-
(12) Fighting forest fires	27,428,828	4/ 4,275,000	4,275,000	-
(13) Insect and disease control	5/ 9,504,038	11,610,000	10,250,000	-1,360,000
(14) Acquisition of lands, Weeks Act	2/ 1,299,221	-	-	-
<b>Total, Forest Land Management</b>	<b>226,409,168</b>	<b>207,147,000</b>	<b>225,118,000</b>	<b>+17,971,000</b>
<b>FOREST RESEARCH:</b>				
<b>Forest and range management research:</b>				
(15) Timber management research	10,408,670	10,963,000	10,943,000	-20,000
(16) Watershed management research	4,504,730	4,732,000	4,624,000	-108,000
(17) Range management research	1,599,897	1,497,000	1,497,000	-
(18) Wildlife habitat research	1,258,343	1,401,000	1,401,000	-
(19) Forest recreation research	927,107	1,019,000	1,019,000	-
Subtotal, Forest and range management research	18,698,747	19,612,000	19,484,000	-128,000



Project	1970	1971 Current Estimate	1972 Estimate	Increase or decrease
<b>FOREST RESEARCH -- continued</b>				
Forest protection research:				
(20) Fire and atmospheric sciences research .....	3,713,910:	3,988,000:	3,988,000:	- -
(21) Forest insect research .....	4,546,418:	4,998,000:	4,998,000:	- -
(22) Forest disease research .....	3,047,273:	2,954,000:	2,954,000:	- -
Subtotal, Forest protection research .....	11,307,601:	11,940,000:	11,940,000:	- -
Forest products and engineering research:				
(23) Forest products utilization research .....	8,027,531:	8,579,000:	8,570,000:	-9,000
(24) Forest engineering research .....	903,141:	1,130,000:	1,130,000:	- -
Subtotal, Forest products and engineering research .....	8,930,672:	9,709,000:	9,700,000:	-9,000
Forest resource economics research:				
(25) Forest survey .....	2,676,815:	3,266,000:	3,266,000:	- -
(26) Forest products marketing research .....	1,735,672:	1,943,000:	1,943,000:	- -
(27) Forest economics research .....	1,309,923:	1,335,000:	1,335,000:	- -
Subtotal, Forest resource economics research .....	5,722,410:	6,544,000:	6,544,000:	- -
(28) Forest research construction .....	930,238:	- -:	- -:	- -
Total, Forest Research .....	45,589,668:	47,803,000:	47,668,000:	-137,000
<b>STATE AND PRIVATE FORESTRY COOPERATION:</b>				
(29) Cooperation in forest fire control .....	16,411,442:	16,505,000:	16,494,000:	-11,000
(30) Cooperation in forest tree planting .....	316,054:	319,000:	319,000:	- -
(31) Cooperation in forest management and processing .....	4,116,915:	4,973,000:	4,970,000:	-3,000
(32) General forestry assistance .....	2,065,196:	2,284,000:	2,284,000:	- -
Total, State and Private Forestry Cooperation .....	22,909,607:	24,081,000:	24,067,000:	-14,000
Total obligations or estimate .....	294,908,443:	279,033,000:	296,853,000:	+17,820,000
Unobligated balance .....	296,233:	- -:	- -:	- -
Total available or estimate .....	295,204,676:	279,033,000:	296,853,000:	-17,820,000
Supplemental appropriations for pay cost increases .....	- -:	-10,062,000:	-10,062,000:	- -
Transfer to General Services Administration for space rental .....	295,324:	434,000:	434,000:	- -
Transfer from other accounts .....	-6,386,000:	- -:	- -:	- -
Appropriation or estimate .....	289,114,000:	269,405,000:	269,405,000:	-19,709,000



1/ Does not include obligations of \$455,194 incurred pursuant to 1969 supplemental for timber sale acceleration (PL 91-47, 7/22/69) available until September 30, 1969) and \$172,000 obligations to be incurred in 1971 pursuant to PL 91-305, Second Supplemental Appropriations Act, 1970.

2/ In fiscal year 1971 a new appropriation, Construction and Land Acquisition, was added. Amounts shown for fiscal year 1970 include following obligations in activities for which funds are provided in the appropriation Construction and Land Acquisition in 1971 and 1972:

Recreation-public use .....	\$8,950,382
Maintenance of improvements for fire and general purposes (including communications) .....	3,358,712
Water resource development related activities .....	3,205,162
Acquisition of lands, Weeks Act .....	1,299,221
Forest research construction .....	930,238
Total .....	<u>17,743,715</u>

3/ Includes allocations to the Department of the Interior, Bureau of Land Management: 1970, \$270,000; 1971, \$270,000; 1972, \$270,000

4/ Excludes proposed supplemental for fighting forest fires, \$68 million.

5/ Includes allocation to the Department of the Interior, Bureau of Land Management: 1970, \$750,000; 1971, \$918,500; 1972, \$977,300

6/ Includes \$172,000 to be obligated in 1971--see footnote 1/

NOTE: Reductions in public relations activities made in 1971 and 1972 are distributed above by activities as follows:

	1971	1972
Forest land management:		
Sales administration and management ....	\$39,000	\$78,000
Reforestation and stand improvement .....	32,000	64,000
Recreation-public use .....	33,000	66,000
Forest fire prevention .....	27,000	55,000
Forest research:		
Timber management research .....	20,000	40,000
Forest products utilization research .....	10,000	19,000
State and private forestry cooperation:		
Cooperation in forest fire control .....	11,000	22,000
Cooperation in forest management and processing .....	3,000	6,000
Total .....	<u>175,000</u>	<u>350,000</u>









GEOGRAPHIC BREAKDOWN OF OBLIGATIONS

National Forest Protection and Management  
(includes Projects (1) through (10) on following pages)

	1971 estimate	1972 estimate	Change
Alabama .....	\$1,460,700	\$1,660,000	+\$199,300
Alaska .....	4,024,100	4,562,000	+537,900
Arizona .....	8,462,400	9,636,000	+1,173,600
Arkansas .....	3,707,300	4,028,000	+320,700
California .....	33,509,900	36,654,800	+3,144,900
Colorado .....	8,291,300	9,100,000	+808,700
District of Columbia .....	8,664,900	8,973,000	+308,100
Florida .....	2,103,400	2,358,000	+254,600
Georgia .....	1,604,700	1,724,000	+119,300
Idaho .....	15,020,400	17,200,000	+2,179,600
Illinois .....	625,500	773,000	+147,500
Indiana .....	364,400	392,000	+27,600
Kansas .....	55,100	55,100	- -
Kentucky .....	1,333,100	1,420,000	+86,900
Louisiana .....	1,561,100	1,662,000	+100,900
Maine .....	85,600	86,000	+400
Maryland .....	192,100	192,100	- -
Michigan .....	3,511,600	3,730,000	+218,400
Minnesota .....	3,872,600	4,139,000	+266,400
Mississippi .....	2,443,300	2,591,000	+147,700
Missouri .....	2,346,700	2,457,000	+110,300
Montana .....	10,740,000	12,289,000	+1,549,000
Nebraska .....	258,300	260,000	+1,700
Nevada .....	1,977,000	2,116,000	+139,000
New Hampshire .....	984,600	1,074,000	+89,400
New Mexico .....	7,126,800	7,996,000	+869,200
New York .....	51,000	51,000	- -
North Carolina .....	2,413,600	2,710,000	+296,400
North Dakota .....	315,600	352,000	+36,400
Ohio .....	454,500	478,000	+23,500
Oklahoma .....	428,300	453,000	+24,700
Oregon .....	23,103,800	25,380,000	+2,276,200
Pennsylvania .....	1,245,800	1,322,000	+76,200
Puerto Rico .....	58,700	61,000	+2,300
South Carolina .....	1,482,500	1,559,000	+76,500
South Dakota .....	2,251,200	2,420,000	+168,800
Tennessee .....	1,330,100	1,470,000	+139,900
Texas .....	1,757,700	1,878,000	+120,300
Utah .....	7,045,200	7,639,000	+593,800
Vermont .....	475,200	521,000	+45,800
Virginia .....	2,486,200	2,698,000	+211,800
Washington .....	10,425,100	12,016,000	+1,590,900
West Virginia .....	1,801,900	1,960,000	+158,100
Wisconsin .....	2,337,700	2,524,000	+186,300
Wyoming .....	4,473,000	4,975,000	+502,000
Total .....	188,264,000	207,595,000	+19,331,000



TIMBER RESOURCE MANAGEMENT - Sales administration and management

1970 .....	\$48,491,000
1971 .....	54,453,000
1972 .....	61,164,000
Increase .....	+6,711,000

An increase of \$6,711,000 is needed as follows:

- (1) \$2,880,000 increase in the regular timber harvest program will provide for an increased harvest of 370 million board feet over fiscal year 1971. Unit costs have increased because of higher standards necessary to meet environmental quality needs and timber sales work is moving further into more remote and difficult areas.
- (2) \$980,000 increase in inventories and management plans will provide for more frequent and improved timber inventories which are needed as a basis for recalculating annual allowable harvest.
- (3) \$2,851,000 increase in regular timber sale preparation will maintain the fiscal year 1971 level of outputs for timber sale preparation in fiscal year 1972. Unit costs have been increased to accommodate the additional assistance of specialists in soil analysis, landscape layout, wildlife management and ecology and the multidiscipline planning of sale areas required to improve the quality of the timber management program.

The total program for fiscal year 1972, compared with 1970 and 1971, follows:

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Increase</u>
		(in thousands)		
<u>Regular program</u>				
Harvest .....	\$16,753	\$21,428	\$24,308	+\$2,880
Sale preparation .....	24,835	24,867	27,718	+2,851
Enforcement of Log Export Act .....	510	517	517	- -
<u>Thinning and salvage</u>				
Harvest .....	1,400	2,316	2,316	- -
Sale preparation .....	2,660	2,503	2,503	- -
<u>Timber inventories and management plans</u> .....	<u>2,333</u>	<u>2,822</u>	<u>3,802</u>	<u>+980</u>
Total .....	48,491	54,453	61,164	+6,711

The following tabulation reflects workload and cost information for fiscal years 1970, 1971, and 1972. The unit costs for fiscal year 1972 reflect the increased costs needed to improve the quality of the timber management program including items such as:

- (1) Public meetings on sale offerings.
- (2) Impact studies needed for sales in sensitive areas.
- (3) Different sale layout design needed because of environmental and esthetic consideration.
- (4) Increased number of appeals on sale offerings and intensified training of field timber management personnel in ecological and environmental issues and practices. The increased unit cost for the regular harvest program reflects the need for more administration and inspection to protect the soil, ensure more complete utilization and cleanup and maintain the habitat structure.





	<u>1970</u>	<u>1971</u>	<u>1972</u>
(1) <u>Regular program</u>			
(a) <u>Harvest</u>			
Million board feet .....	11,099	12,730	13,100
Cost per thousand board feet .....	\$1.51	\$1.68	\$1.86
Total cost (in thousands) .....	\$16,753	\$21,428	\$24,308
(b) <u>Sale preparation</u>			
Million board feet .....	12,736	11,795	11,795
Cost per thousand board feet .....	\$1.95	\$2.11	\$2.35
Total cost (in thousands) .....	\$24,835	\$24,867	\$27,718
(c) <u>Enforcement of Log Export Act</u> (in thousands)	\$510	\$517	\$517
(2) <u>Thinning and salvage</u>			
(a) <u>Harvest</u>			
Million board feet .....	428	700	700
Cost per thousand board feet .....	\$3.27	\$3.31	\$3.31
Total cost (in thousands) .....	\$1,400	\$2,316	\$2,316
(b) <u>Sale preparation</u>			
Million board feet .....	646	600	600
Cost per thousand board feet .....	\$4.12	\$4.17	\$4.17
Total cost (in thousands) .....	\$2,660	\$2,503	\$2,503
(3) <u>Timber inventories and management plans</u>			
Thousands of acres .....	9,600	9,600	11,000
Cost per acre .....	\$0.24	\$0.29	\$0.35
Total cost (in thousands) .....	\$2,333	\$2,822	\$3,802

The Forest Service timber harvesting program for fiscal year 1972 maintains timber harvesting at allowable cut levels wherever possible and continues the fiscal year 1971 level of offerings of timber not normally included under allowable cut levels (thinning and salvage material).

It is planned to sell 11.8 billion board feet of regular material and 0.6 billion board feet of thinning and salvage material, or a total 12.4 billion board feet. This will cost \$30,221,000, or \$2,851,000 over fiscal year 1971.

It is planned to harvest 13.1 billion board feet of regular material and 0.7 billion board feet of thinning and salvage material, or a total of 13.8 billion board feet. This will cost \$26,624,000, or \$2,880,000 over fiscal year 1971.

Returns to the Treasury from the timber harvest program will increase over fiscal year 1971. The following tabulation shows receipts from the harvest of National Forest timber:

<u>Fiscal Year</u>	<u>Receipts (in millions)</u>
1965 .....	\$138.8
1966 .....	164.9
1967 .....	172.8
1968 .....	205.6
1969 .....	306.8
1970 .....	283.9
1971 .....	322.3 (estimated)
1972 .....	351.9 (estimated)

Based on the above tabulation, each dollar of program cost for 1972 will return over \$5.75 to the United States Treasury in the form of timber receipts.

The program for timber inventories and management plans is at a higher level than for fiscal year 1971, \$3,802,000--up \$980,000. The need for "in-place" information by the unit manager to enable him to select a suitable mix of uses has changed the



design and increased the intensity of timber inventories. Frequent updating of timber management plans must be done to more rapidly reflect the changes in allowable cut resulting from reforestation of deforested areas and thinning of overcrowded young stands to increase the growth rate of the best trees. Special inventories are necessary on study areas that are subject to public hearings and possible withdrawals from the allowable cut base. Special inventories are also necessary for mortality and catastrophic losses.

Part IV of the Foreign Assistance Act of 1968 included a section specifying that for each of the calendar years 1969 through 1971, not more than 350 million board feet of unprocessed timber may be sold for export from the United States from Federal lands located west of the 100th meridian. The Secretary of Agriculture is responsible for enforcement of the Act on National Forest lands. This includes not only log export control but holding of public hearings to determine any timber surpluses and prevention of substitution of timber restricted from export for exported non-Federal timber. Program costs have been maintained at the same level for fiscal year 1972 as for fiscal year 1971 as the Housing and Urban Act of 1970 (PL 91-609, December 31, 1970) amended the Foreign Assistance Act of 1968 to extend the log export controls through calendar year 1973.

#### Examples of Recent Accomplishments

Sales administration. Volume harvested during fiscal year 1970 amounted to 11.5 billion board feet--down 0.3 billion board feet from fiscal year 1969. The decrease reflects the effect of the tight money market on housing construction. Receipts also declined, down \$22.9 million from the preceding year, with \$283.9 million deposited in the Treasury. A total of 13.4 billion board feet of timber was sold on the National Forests in fiscal year 1970.

The record of timber cut and sold during the past five years is compared with the annual allowable cut in the following table:

<u>Fiscal Year</u>	<u>Annual Allowable Cut <sup>1/</sup></u>	<u>Actual Volume Cut</u>	<u>Percent of Allowable Cut Harvested</u>	<u>Actual Volume Sold</u>	<u>Percent of Allowable Cut Sold</u>
1966	12.4	12.1	97	11.3	91
1967	12.2	10.9	89	11.6	95
1968	12.2	12.1	99	11.6	95
1969	12.8	11.8	92	18.9 <sup>2/</sup>	148
1970	12.9	11.5	89	13.4	104

<sup>1/</sup> As of January 1 preceding the fiscal year. Annual allowable cut includes only sawtimber for National Forests west of the Great Plains and in Alaska, and sawtimber and convertible products for National Forests in the eastern half of the United States.

<sup>2/</sup> Includes Juneau Unit Pulp Sale in Alaska of 8.75 billion board feet.



TIMBER RESOURCE MANAGEMENT - Reforestation and Stand Improvement

1970 .....	\$17,170,000
1971 .....	19,907,000
1972 .....	27,075,000
Increase .....	+7,168,000

An increase of \$7,168,000 is proposed to accelerate the total net timber growth on the National Forests and to raise both short-term and long-term sustainable harvests from National Forests. This helps to avoid increases in timber product prices, especially during periods of increasing demand for wood products. Funds will be allocated regionally to achieve maximum growth response and, wherever possible, to provide additional employment to Indians.

The program for fiscal year 1972, compared with fiscal year 1971, follows:

	<u>1971</u>	<u>1972</u> (in thousands)	<u>Increase or decrease</u>
Reforestation .....	\$12,125	\$13,267	+\$1,142
Timber stand improvement .....	6,046	12,154	+6,108
Genetic tree improvement .....	1,443	1,334	-109
Nursery operation and development ....	293	320	+27
Total .....	<u>19,907</u>	<u>27,075</u>	<u>+7,168</u>

The \$1,142,000 increase in the reforestation program will be used to reforest 9,800 additional acres by planting or seeding understocked or brush-covered land capable of producing high quality timber at a good growth rate. The average annual growth increase from this acreage is estimated at 1.085 million cubic feet (approximately 5.5 million board feet).

The \$6,108,000 increase in the timber stand improvement program will be used to treat 110,000 additional acres by thinning overcrowded young conifer stands in order to increase the growth rate of the residual trees. The average annual growth increase from this acreage is estimated at 5.5 million cubic feet (approximately 27.5 million board feet).

The \$109,000 decrease in the genetic tree improvement program results from fewer acres of seed orchards and seed production areas being established for fiscal year 1972.

The \$27,000 increase in the nursery development program reflects the need for expanded irrigation systems, fencing, and improvement of facilities.

The proposed programming of total funds available in fiscal year 1972 (including the proposed increase) and comparison with 1971 and 1970 follows:

	<u>1970</u>		<u>1971 (estimate)</u>		<u>1972 (estimate)</u>	
		<u>Acres</u>		<u>Acres</u>		<u>Acres</u>
Reforestation ....	\$11,135,000	101,845	\$12,125,300	117,400	\$13,267,000	127,200
Timber stand improvement ....	4,691,000	123,558	6,045,800	154,000	12,154,000	264,000
Genetic tree improvement ....	1,180,000		1,443,200		1,334,000	
Nursery operation and development	164,000		292,700		320,000	
Total	<u>17,170,000</u>	<u>225,403</u>	<u>19,907,000</u>	<u>271,400</u>	<u>27,075,000</u>	<u>391,200</u>





The average annual growth increase from the total 127,200 acres to be reforested is estimated at 13.7 million cubic feet (approximately 68.7 million board feet).

The average annual growth increase from the total 264,000 acres to be treated by stand improvement measures is estimated at 13.8 million cubic feet (approximately 68.9 million board feet).

It is estimated that the total program will provide 468,000 man-days of employment to semiskilled workers, generally in low-income rural areas.

An estimate of the acreage to be treated in each State is shown in Table 1 at the end of this section.

The locations and descriptions of the nursery projects are shown in Table 2.

#### Examples of Recent Accomplishments

Reforestation. An area of 91,421 acres of National Forest land was reforested with appropriated funds in 1970--73, 596 by planting and 17,825 by seeding. In addition, 10,424 acres were artificially reforested by preparing the ground to promote regeneration from natural seed-fall. Other reforestation accomplishments in 1970 include:

- (1) Procurement of 14,303 pounds of clean tree seed. Forest Service seed extractories processed 13,869 pounds of seed and 434 pounds of seed were purchased from commercial seed companies.
- (2) Production of 102.7 million trees in 14 Forest Service nurseries.
- (3) Establishment of 49 acres of new seed production areas and 259 acres of new seed orchards. About fifty percent of the southern pine seedlings outplanted were grown from the better quality seed produced in seed orchards or seed production areas.

In addition to reforestation done with appropriated funds, the following work was done with funds collected under the authority of the Knutson-Vandenberg Act:

	Acres
Reforested by: Tree planting .....	133,295
Seeding .....	34,808
Ground preparation to regenerate from natural seed fall.....	37,067
Total .....	205,170

An additional 2,425 acres of National Forest land were reforested by other Federal and cooperative programs.

The total area reforested where some treatment such as planting, seeding or site preparation was applied in 1970 was 309,440 acres.

Timber stand improvement. An area of 123,558 acres was treated by the following cultural measures with appropriated funds in 1970:

	Acres
Thinning .....	58,483
Release .....	63,071
Pruning .....	504
Fertilization .....	1,500



Timber stand improvement was also done for the same purpose with Knutson-Vandenberg funds on the following acreage in 1970:

	<u>Acres</u>
Thinning .....	100,050
Release .....	62,200
Pruning .....	2,094

Table 1 - Estimate of Reforestation - Timber Stand Improvement to be Done  
Fiscal Year 1972--Appropriated Funds

<u>State</u>	<u>Reforestation</u> (Acres)	<u>Timber Stand Improvement</u> (Acres)
Alabama .....	6,300	4,800
Alaska .....	- -	500
Arizona .....	1,900	15,600
Arkansas .....	12,400	6,100
California .....	10,600	34,600
Colorado .....	3,350	6,400
Florida .....	8,800	2,900
Georgia .....	800	1,000
Idaho .....	12,000	20,700
Illinois .....	700	200
Indiana .....	800	100
Kentucky .....	1,700	2,400
Louisiana .....	2,200	1,100
Maine .....	- -	700
Michigan .....	5,900	5,600
Minnesota .....	8,700	9,600
Mississippi .....	4,500	800
Missouri .....	4,000	3,300
Montana .....	4,900	19,900
Nevada .....	100	- -
New Hampshire .....	- -	3,700
New Mexico .....	1,600	10,200
North Carolina .....	4,400	5,400
Ohio .....	800	200
Oklahoma .....	600	1,700
Oregon .....	14,100	49,600
Pennsylvania .....	- -	2,700
South Carolina .....	900	- -
South Dakota .....	400	1,400
Tennessee .....	900	2,200
Texas .....	1,200	500
Utah .....	500	5,300
Vermont .....	- -	1,000
Virginia .....	2,200	3,400
Washington .....	3,000	27,600
West Virginia .....	400	4,600
Wisconsin .....	4,000	4,000
Wyoming .....	2,550	4,200
Total .....	127,200	264,000



Table 2 - Nursery Operation and Development Projects -- FY 1972

<u>Coeur d'Alene Nursery, Coeur d'Alene, Idaho</u>		
Chain link fence.....	\$21,300	
Pave nursery compound and service areas .....	<u>24,500</u>	\$45,800
<u>Mt. Sopris Nursery, Basalt, Colorado</u>		
Land development, additional irrigation system and well .....	19,000	
Construct greenhouse .....	24,500	
Minor betterment items .....	4,000	
Construct garage .....	<u>6,500</u>	54,000
<u>Santa Fe Extractory, Santa Fe, New Mexico</u>		
Cone collection .....	24,000	
Operation of extractory and storage .....	<u>30,000</u>	54,000
<u>Lucky Peak Nursery, Boise, Idaho</u>		
Pave service area .....	8,000	
Expand irrigation system .....	24,000	
Minor betterment items .....	<u>3,000</u>	35,000
<u>Placerville Nursery, Placerville, California</u>		
Replace residence .....	25,000	
Minor betterment items .....	<u>5,000</u>	30,000
<u>Humboldt Nursery, Humboldt, California</u>		
Complete land preparation and irrigation system for blocks 5, 6, and 7 .....	21,500	
Clear block 8 .....	12,600	
Minor betterment items .....	<u>3,600</u>	37,700
<u>Wind River Nursery, Carson, Washington</u>		
Land development (Bunker Hill Division) .....	3,000	
Replace portion of irrigation system .....	11,500	
Minor betterment items .....	<u>8,500</u>	23,000
<u>W. W. Ashe Nursery, Brooklyn, Mississippi</u>		
Chain link fence .....	5,600	
Pave service area .....	<u>6,400</u>	12,000
<u>J. W. Toumey Nursery, Watersmeet, Michigan</u>		
Purchase subsoiler, grading tables, conveyor belt, manure spreader and cone tray .....	5,600	
Windbreak removal and maintenance .....	4,100	
Minor betterment items .....	<u>3,100</u>	12,800
<u>Eveleth Nursery, Eveleth, Minnesota</u>		
Construct chemical storage building .....	7,400	
Minor betterment items .....	<u>5,300</u>	12,700
<u>Chittenden Nursery, Wellston, Michigan</u>		
Minor betterment items .....	<u>3,000</u>	<u>3,000</u>
Total.....		320,000





RECREATION-PUBLIC USE

1970 .....	\$39,452,000
1971 .....	36,530,000
1972 .....	38,697,000
Increase .....	+2,167,000

An increase of \$2,167,000 is proposed to:

- (1) Allow a more intensively administered fee program under the Land and Water Conservation Fund Act. It will provide additional revenue into the U. S. Treasury.
- (2) Help cope with problems in public safety and to reduce the more than \$2 million of vandalism which occurs annually in developed sites and dispersed areas. This will be accomplished by increasing night patrols as a preventive measure and providing law enforcement training to seasonal and permanent employees.
- (3) Provide and maintain essential operation, cleanup, and sanitation services for an expected 5 percent increase in recreation use.
- (4) Begin a program to achieve compliance with Executive Orders 11507 (Solid Waste Disposal) and 11514 (Protection and Enhancement of Environmental Quality). Emphasis will be placed on disposal locations which can provide the lowest possible operation costs as reflected in equipment availability, haul distances, and soil types. Sites to be replaced first will be those with the greatest potential for air or water pollution abatement.
- (5) Extend the recreation season to accommodate the growth in use of the National Forests. The funds will allow increased cleanup efforts, and general administration to protect the forest environment.

The Forest Service manages recreation use through the National Forest System. The following tabulation shows the total planned financing for fiscal year 1972 as compared with 1971:

	<u>FY 1971</u>	<u>FY 1972</u>	<u>Change</u>
	(in thousands)		
<u>Operation, Maintenance, and Administration</u>			
(1) Recreation inventories and plans .....	\$1,794	\$1,794	
(2) Managing National Forest recreation:			
(a) Administration, operation, cleanup, and sanitation of developed sites and areas ...	12,216	15,272	+\$3,056
(b) Maintenance of developed sites and areas ..	10,342	9,342	-1,000
(c) Concession and recreation use permits .....	1,638	1,338	-300
(3) Administration, cleanup, and sanitation of dispersed recreation use .....	2,823	2,823	
(4) Management of areas specially classified by Acts of Congress:			
(a) Administration, operation and cleanup of National Recreation Areas .....	1,413	1,413	
(b) Maintenance of National Recreation Areas ..	446	345	-101
(c) National Wilderness Preservation System ...	2,818	2,818	
(d) National Wild and Scenic Rivers System ....	100	256	+156
(e) Nationwide system of trails .....	55	187	+132
(5) Identification, protection and administration of the use of historical, geological, botanical, archeological, and other recognized areas of unique and special interest .....		65	+65



	<u>FY 1971</u>	<u>FY 1972</u>	<u>Project (2)</u> <u>Change</u>
Operation, Maintenance, and Administration--continued		(in thousands)	
(6) Environmental architecture .....	\$138	\$138	
(7) Administration, operation, and manning			
of Visitor Information Service .....	<u>2,747</u>	<u>2,906</u>	<u>+\$159</u>
Total .....	<u>36,530</u>	<u>38,697</u>	<u>+2,167</u>

In fiscal year 1970 and prior years, funds for quality improvement of existing facilities, new recreation construction, and water pollution abatement were provided under this activity. Beginning in fiscal year 1971, these funds were appropriated under the fund, Construction and land acquisition. The 1970 accomplishments are shown under the new Construction and land acquisition appropriation.

It is estimated that recreation use on the National Forests in calendar year 1972 will aggregate 186.7 million visitor days, an increase of 5 percent over estimated use in 1971 and an increase of nearly 19 percent over use of 156.6 million in 1968. In order to maximize recreation benefits in the National Forests, it will be necessary to adjust some funds between major recreation program activities as shown above.

Designation by Congress of National Wild and Scenic Rivers and a Nationwide System of Trails emphasizes the importance and public interest in these areas. It is the responsibility of the Forest Service to effectively protect, administer, and operate these areas for public enjoyment and benefit without jeopardizing their unique esthetic and recreation attributes.

Law enforcement has traditionally been a low key Forest Service activity. Normally, National Forest officials could depend upon local law enforcement officials to handle most problems. This is changing. Laws enforced by the Forest Service must be stressed to ensure National Forest visitors a safe and quality recreation experience.

To maintain health and safe standards, and to prevent additional pollution, operation, cleanup, and sanitation in developed sites has been identified for increased financing.

A more detailed explanation of financial needs and funding priorities is as follows:

(1) Recreation inventories and plans ..... \$1,794,000

These funds will be used for maintaining 1959 to 1961 National Forest Recreation Survey and unit management plans; and the preparation of the highest priority plans for new developments.

(2) Managing National Forest Recreation

(a) Administration, operation, cleanup, and sanitation  
of developed sites and areas ..... \$15,272,000

The increase of \$3,056,000 will be used to administer an expected increase of 3 million visitor-day use and begin a program to comply with Executive Order 11507 (Air and Water Pollution Control at Federal Facilities) and Executive Order 11514 (Protection and Enhancement of Environmental Quality). There were 11,970 known law violations during 1969 in National Forest recreation areas in the California and Southern Regions, and more than \$2 million of damage from vandalism in National Forest recreation sites. Increased intensity of administration, including actions such as night patrols and full-time attendants, should alleviate some of the problems.

(b) Maintenance of developed sites ..... \$9,342,000

The funding (decrease of \$1 million) will allow essential recurring maintenance and correction of unsafe conditions at Forest Service operated sites.



(c) Concession and recreation use permits ..... \$1,338,000

In fiscal year 1972, approximately 28.2 million visitor-days, or 40 percent of the use of all developed sites on the National Forests, will be accommodated by facilities built and operated under Forest Service supervision, by special-use permittees and/or concessioners.

The decrease of \$300,000 reflects the relative priority of the work compared to the pressing needs of operation, cleanup, and sanitation of developed public use sites and the need to finance administration of National Wild and Scenic Rivers and the Nationwide System of Trails. The funding level will administer 1,777 concession and 20,000 recreation special-use permits. This work is necessary to assure compliance with permit requirements that sites continue to serve the purpose for which they have been established.

(3) Administration, cleanup, and sanitation of dispersed recreation use ..... \$2,823,000

Maintaining this level of funding will permit administration of dispersed-type recreation such as hiking, riding, hunting, fishing, and snow play on 171 million acres of National Forest lands (outside of wilderness, special areas, and developed sites) which will accommodate 111 million visitor-days of use in 1972. This work includes cleanup, providing for the reasonable safety of users, some minimal sanitation facilities to prevent pollution, and enforcement of Secretary of Agriculture regulations.

(4) Management of areas specially classified by Acts of Congress(a) Administration, operation and cleanup of developed sites and areas, National Recreation Areas .... \$1,413,000(b) Maintenance of developed sites and areas, National Rec.Areas \$345,000

This is a decrease of \$101,000. Recreation use at some of these special areas has not increased as rapidly as projected. Upon assuming management of that part of Flaming Gorge National Recreation Area formerly administered by the National Park Service, operation plans were made on the basis of National Park Service projections of future use of in excess of one million visitor days. Actual use as estimated and reported by the Forest Service was only 484,000 visitor days.

The level of funding will provide administration for the 181 developed sites at National Recreation Areas. It will also provide for satisfactory cleanup after use.

(c) National Wilderness Preservation System ..... \$2,818,000

This funding will provide an acceptable level of cleanup and sanitation on the 14.2 million acres of National Forest Wilderness and Primitive Areas.

Studies leading towards reclassification of Primitive Areas as directed by the Wilderness Act of 1964 will also remain on schedule to assure completion within the allotted time directed by the Act.

(d) National Wild and Scenic Rivers System ..... \$256,000

The \$156,000 increase will provide for cleanup and sanitation within newly established units of the Wild and Scenic Rivers System. It will provide the cleanup necessary to accommodate 300,000 visitor-days of use these areas will receive. Cleanup costs are high due to difficult accessibility, and programs will be adopted to encourage visitor self cleanup. In addition, the increase will provide the necessary administration of recreation use along the 478 miles of wild, scenic, and recreational rivers.





(e) Nationwide system of trails ..... \$187,000

The \$132,000 increase will be used for cleanup and administration necessary to accommodate the 600,000 visitor-days of use expected on over 2,000 miles of the recently established Appalachian and Pacific Crest National Scenic Trails on the National Forests.

(5) Identification, protection, and administration of the use of historical, geological, botanical, archeological, and other recognized areas of special unique and special interest ..... \$65,000

An increase of \$65,000 is necessary to:

- (a) Identify key archeological sites.
- (b) Develop and maintain information on archeological sites.
- (c) Protect those sites and artifacts endangered by threatened vandalism.

This funding will permit initiating urgent work primarily in the Southwest Region. Excavation of endangered sites would be allowed on an emergency basis, if necessary.

(6) Environmental architecture ..... \$138,000

The funding will allow developing procedural instructions and training programs for all National Forest land managers to insure that all commodity uses which the National Forests must support are so planned and administered as to be compatible with the environmental and ecological integrity of all the landscapes involved.

(7) Visitor Information Service ..... \$2,906,000

The \$159,000 increase will be used to continue the existing program throughout the National Forest System.

It is expected there will be a 6 percent increase in activities provided at existing visitor centers, information stations, roadside exhibits, guided interpretive walks for the blind and handicapped, auto tours, amphitheater and campfire talks.

New facilities which have recently opened or expanded their capacity are:

- (a) Sylvania Visitor Center (Michigan).
- (b) Ghost Ranch Visitor Center (New Mexico).
- (c) Visitor programs on four Marine Highway Ships (Alaska).
- (d) Three interpretive trails for the blind (California, Florida, New Mexico).
- (e) Sixteen interpretive trails and 37 signs for the general public throughout the National Forest System.

The naturalist programs provided at these locations contribute to public understanding and appreciation of natural resources and the role of natural resources on the quality of the human environment. These programs are the foundation of the Forest Service's people-to-people environmental and ecological education activities.



WILDLIFE HABITAT MANAGEMENT

1970 .....	\$4,731,000
1971 .....	4,843,000
1972 .....	5,943,000
Increase .....	+1,100,000

An increase of \$1.1 million is proposed as follows:

Habitat enhancement for fish and wildlife is needed to meet the ever increasing recreation demands. Special emphasis will be placed on rare and endangered wildlife species and fish stream habitat work. Fish stream work will also have the benefit of improving water quality for other uses. Improvement projects will include seeding, permanent wildlife openings, spring developments, small dams, water guzzlers, pothole construction, nest boxes, debris removal from streams, construction of fish spawning beds, and development of fish shelters. These types of projects will not only provide jobs for temporary laborers and increase hunting and fishing opportunities, but will directly improve the quality of the forest environment.

A balanced program of land use and development that gives adequate consideration to wildlife and fish habitat requires the expertise of trained biologists and sub-professional personnel. These men, working with other disciplines (foresters, engineers, range managers, recreation planners, and soil scientists) during the planning and development stages of resource management activity, will incorporate specific measures into the plans that will most nearly satisfy the habitat requirements of the wildlife and fish species that are present.

During the past several years the level of activity on the National Forests in timber stand improvement, timber regeneration, recreation, road and trail construction, and watershed management, has increased tremendously. These activities, along with timber harvesting, can have adverse impacts upon wildlife and fish habitat unless fully coordinated with the biological needs of the wildlife and fish species inhabiting the areas where the work is performed.

Emphasis will be placed on projects and coordination activities that will provide employment opportunities for local people, especially American Indians.

The planned level of financing for fiscal year 1972, as compared with 1970 and 1971, is as follows:

	<u>1970</u>	<u>1971</u>	<u>1972</u>
	(in thousands)		
<u>(1) Recurrent Work</u>			
(a) Coordinating wildlife needs with other resource activities .....	\$1,280	\$1,273	\$1,473
(b) Cooperation with State and Federal agencies .....	989	1,059	1,059
(c) Surveys and plans .....	999	970	970
(d) Maintenance of habitat improvements	387	410	410
<u>(2) Habitat Restoration and Development</u>			
(a) Food and cover development .....	342	323	498
(b) Water developments .....	92	97	222
(c) Wetland development .....	295	334	509
(d) Fish stream improvement .....	204	229	504
(e) Fish lake development .....	143	148	298
Totals .....	4,731	4,843	5,943

Recurrent work is the heart of the wildlife program which involves relatively fixed annual costs in relation to other resource uses and programs.

- 1(a) Coordination. Coordinating wildlife environmental needs in all other resource uses and activities. Wildlife biologists are assigned to all



regional offices and to a number of the National Forests to work on multi-discipline planning teams and give technical guidance to this activity. The intensity of coordination determines the degree to which wildlife values are protected or enhanced. The control of animal damage to other resources also requires intensive coordination.

- 1(b) Cooperation. Cooperating with State conservation departments, the agencies responsible for protecting wildlife and regulating the harvest of game populations, is an important part of the Forest Service wildlife program. Habitat management on the National Forests is essential to the success of State fish and game programs because habitat and wildlife populations cannot be managed independently of each other. The States contribute a substantial share of the cost of habitat and fishing water improvements. In 1970, the States financed 36 percent of the habitat work on the National Forests. This amounts to an expenditure of a little under \$1 million.
- 1(c) Surveys and plans. Evaluating wildlife, fish, and rare or endangered species habitat, preparing or revising wildlife management plans, and assisting with multiple use planning, are continuing activities which are basic to an effective wildlife program.
- 1(d) Maintenance. Maintaining habitat improvements already in place is a recurring job that generally takes precedence over new development work. The States share in this work under terms of cooperative agreements.

Habitat restoration and development include a wide variety of activities designed to increase wildlife and fish production for the use and enjoyment of the public.

- 2(a) Food and cover. Developing either food or protective cover to enhance the quality of the wildlife environment. This is a broad-based program applicable on all Forest Service administered lands.
- 2(b) Water developments. Includes several types of projects aimed at providing drinking water for wildlife. This work is particularly important in the arid regions of the West.
- 2(c) Wetland developments. About 90 percent of this work consists of marshland improvement for waterfowl in the north central States and the development of greentree reservoirs along the Mississippi drainage. This work is extremely important in the total national effort to maintain waterfowl production.
- 2(d) Fish stream improvement. Includes removal of migration barriers establishing in-stream improvement devices, mechanical gravel cleaning, streambank stabilization, streambank fencing, and construction of streamflow maintenance. Program emphasis will be directed toward the western forests and Alaska.
- 2(e) Fish lake improvement. Includes development of new fishing lakes and the improvement of existing lakes. New lake development is a cooperative program with the State conservation departments.

#### Work accomplishments during 1970

A summary of habitat restoration and development accomplishments follows:

- |                                      |               |
|--------------------------------------|---------------|
| (1) Food and cover development ..... | 180,182 acres |
| (2) Water development .....          | 958 units     |
| (3) Wetland development .....        | 5,779 acres   |
| (4) Fish stream improvement:         |               |
| (a) In-stream structures .....       | 617 units     |
| (b) Barrier removal .....            | 761 units     |
| (c) Spawnbed improvements .....      | 1,038 rods    |
| (d) Channel fencing .....            | 2,184 rods    |
| (e) Rough fish removal .....         | 13 miles      |
| (5) Fish lake development:           |               |
| (a) Spawnbeds and shelters .....     | 269 units     |
| (b) Aquatic plant control .....      | 1,882 acres   |
| (c) Rough fish removal .....         | 39,743 acres  |
| (d) New fishing lakes .....          | 722 acres     |





Selected Examples of Accomplishment

The improvement of waterfowl habitat on the Buffalo Gap Grasslands and the Nebraska National Forest is proving quite successful. Work has included:

- (1) Fencing reservoir areas for the protection of shoreline vegetation.
- (2) Construction of nesting platforms and cones.
- (3) Planting of food plots.
- (4) The introduction of wing-clipped Canada geese by the State.

At the present time, 28 of the 47 rare and endangered species on Forest Service administered lands are receiving special management attention. Seventy-four masked bobwhite quail (an endangered species) were released on the Nogales District of the Coronado National Forest, Arizona. This is the result of a cooperative endeavor with the Bureau of Sport Fisheries and Wildlife and the Arizona Game and Fish Department.

A stream habitat evaluation technique manual was published in the Southwest Region. This publication provides a uniform method for determining the needs for improvement work in fisheries habitat surveys.

At Portage Creek on Afognak Island, Alaska, the completion of an aluminum fish ladder was marked by almost immediate success. The ladder permitted 4,000 pink salmon to reach upstream spawning areas otherwise inaccessible due to the extremely low water conditions last summer. The odd-year runs are traditionally weak in this area, and the loss of these fish would have meant a significant loss in production. This project is typical of the dramatic success of the fish habitat improvement program for anadromous fish in Alaska.

Public use and enjoyment of the wildlife resources continue to grow. This use includes both hunting and fishing and appreciative uses. In calendar year 1969, the estimated public wildlife use of Forest Service administered lands amounted to:

Hunter visitor-days ..... 14,148,000

Fisherman visitor-days ..... 14,868,000

(The visitor-day is a unit of measure amounting to 12 hours.)

In addition, there was an estimated 10.4 million days of appreciative use which includes bird and animal watching, wildlife photography, and forest visits to observe all forms of wildlife, including rare and endangered species. Wildlife activities not only provide for an outdoor recreation experience and the suitable environment for all wildlife species but it is also important from an economic standpoint. This is especially true in rural areas and communities. Estimated user expenditures for wildlife-oriented activities on the National Forests for fiscal year 1970 are as follows:

<u>Activity</u>	<u>Days Use*</u>	<u>User</u>
		<u>Expenditures**</u> (in millions)
Appreciative (bird watching and photography) ..	10.4	\$52
Big-game hunting .....	24.2	231
Small-game hunting .....	8.4	40
Waterfowl hunting .....	1.4	9
Freshwater fishing .....	44.2	220
Saltwater fishing .....	0.4	4
Commercial salmon fishing .....	0.4	26

\*Days use--calculated from visitor-days use reports, using the following conversions:

- (1) Each hunter averages 5 hours of hunting time per day.
- (2) Each freshwater fisherman averages 4 hours of fishing per day.
- (3) Each saltwater salmon fisherman averages 6 hours of fishing per day.
- (4) Each bird watcher/photographer is estimated to spend 4 hours per day.

\*\*User expenditures--based on average expenditures for sport fishing and hunting as determined in the National Survey of Fishing and Hunting (1965). For commercial fishing, the output value is based on the value of the salmon catch of fish spawned in waters within National Forests but caught in off-shore saltwater.



## ACCOMPLISHMENTS

### Before



### After



Nicholson Creek, Francis Marion National Forest, South Carolina, Greentree Reservoir structure. Structure controls water, improves waterfowl potential, and improves area for hardwood production.

Figure 3-1





## RARE AND ENDANGERED SPECIES



These young bald eagles in a nest on the Chippewa National Forest in Minnesota are representative of the 47 rare or endangered wildlife species found on Forest Service-administered land. Intensified programs of habitat protection and management are needed if these species are to continue as part of our national heritage.

Figure 3-2





RANGE RESOURCE MANAGEMENT

1970 .....	\$6,784,000
1971 .....	6,940,000
1972 .....	6,940,000

It is proposed to continue this program at the 1971 level.

The principal function of the range resource management program is the development and stewardship of the range resources of the National Forest System. More specifically the tasks include:

- (1) Inventorying and analyzing the resource.
- (2) Planning and carrying out its developments.
- (3) Allocating and administering its use.

There are 105.5 million acres of National Forest System land included in some 11,900 range allotments. Closely associated with the public lands are 66 million acres of private land which complete the land base for some 18,000 livestock operations. Nearly all of these are small family-type operations. In addition to these commercial users of public range, some 68,500 local residents, recreationists, and incidental forest travelers are issued permits free of charge to graze their milk cows, work horses, or transportation stock.

Neither the National Forest System grazing lands nor the commensurate private lands are producing at their reasonably attainable potential. The grazing capacity of the National Forest System rangelands can be increased by an estimated 6.4 million animal unit months through long-term economically sound development investment and improved management. The production potential of the commensurate private lands parallels that of the public lands.

There are some 350,000 acres of National Forest System lands infested with noxious farm weeds. The problem has grown in recent years parallel with the increased use of the public land. The weeds are introduced by such activities as fire suppression, logging, road construction, hunting and recreation use, and livestock and wildlife grazing.

Since many of the major drainages and their tributaries have their source on the National Forests, infested National Forest lands are a potential source of infestation for vast areas of high value agricultural lands downstream.

Public Law 90-583 (80 Stat. 1146) authorizes the Congress to appropriate to Federal agencies and departments such sums as it determines necessary to facilitate cooperation with States having active weed control programs. Subsequent to enactment of this Act, counties throughout the country are formulating weed control programs and asking the Forest Service to participate in a coordinated effort.

Recent and planned accomplishments

	1970 (accomplished)	1971 (estimated)	1972 (planned)
Allotments analyzed and plans completed (cumulative) .....	6,440	6,940	7,440
Allotments currently under intensive management .....	5,150	5,400	5,650
Noxious farm weed control (acres) .....	4,000	4,000	4,000



RANGE REVEGETATION

1970 .....	\$3,291,000
1971 .....	3,339,000
1972 .....	3,339,000

It is proposed to continue this program at the 1971 level.

Range revegetation establishes by cultural means a vegetation cover which provides desirable forage for livestock and game and which adequately protects the soils. The program is carried out in badly deteriorated areas that need to be expeditiously restored. There are some 8 million acres of severely depleted rangeland in the National Forest System which needs to be restored by cultural means. Restoration of these lands through improved management of the livestock or even through complete deferment from grazing would be too slow to save the soil resource.

Revegetation work is undertaken allotment-by-allotment and is part of the management package for each allotment. Cultural treatment must be followed by improved management in order for it to be effective.

Recent and planned accomplishments

	<u>1970</u> (accomplished)	<u>1971</u> (estimated)	<u>1972</u> (planned)
Acres revegetated:			
With appropriated funds .....	178,100	180,000	180,000
With permittee funds .....	<u>48,680</u>	<u>48,000</u>	<u>48,000</u>
Total .....	226,780	228,000	228,000



RANGE IMPROVEMENTS

1970 .....	\$3,897,000
1971 .....	4,511,000
1972 .....	4,511,000

It is proposed to continue this program at the 1971 level.

Range improvements consist of the construction and maintenance of the structural improvements needed to manage the livestock on the range and properly utilize the forage resource.

The protection and management of the range environment is highly dependent upon fences, water developments and other facilitating structures. Range fences provide control over distribution of livestock. They also make possible the resting of portions of the range on a systematic rotation basis. Water developments benefit the range by making otherwise unused areas available for use and by spreading out the livestock, thus preventing concentration of grazing use and depletion of vegetation and soil.

Presently, there are some 54,000 miles of fences and 38,000 water developments on the National Forest System ranges. About 50,000 additional miles of fence and 37,000 additional water developments are needed to make possible the intensive management of all 11,900 range allotments in the National Forest System. Existing improvements must be maintained to keep them effective.

Recent and planned accomplishments

	<u>1970</u> (accomplished)	<u>1971</u> (estimated)	<u>1972</u> (planned)
Miles of fence constructed:			
With appropriated funds .....	1,100	1,270	1,270
With permittee funds .....	660	690	690
Water developments:			
With appropriated funds .....	900	1,040	1,040
With permittee funds .....	850	900	900





SOIL AND WATER MANAGEMENT

1970 .....	\$6,746,000
1971 .....	6,596,000
1972 .....	8,796,000
Increase .....	+2,200,000

An increase of \$2.2 million is proposed to provide both higher quality land and resource management on National Forest System lands and additional job opportunities in areas of underemployment. Benefits to the nation will accrue through:

- (a) Increased resource production supported by scientific soil, geology, and hydrology inputs.
- (b) Higher level of environmental quality through protection requirements and restoration activities.
- (c) Providing additional utilization of manpower in areas with a shortage of employment opportunities.

(1) Resource protection requirements and design services (\$1,810,000)

An increase of \$300,000 is requested to permit providing essential management services and job opportunities on an additional 250 projects over the fiscal year 1971 plan of 1,000 projects. Included are a wide variety of projects relating to timber management, range management, recreation, and road construction. The additional projects would be primarily related to timber management and transportation requirements in multiple-use management. The principal objectives of the soil and water management services are three-fold:

- (a) Development of standards, criteria, and methods for evaluating degrees of impact to, or the enhancement of, the soil and water resources.
- (b) Development of prescriptions to assure that resource programs are designed and implemented in a manner that protects the soil, water, and other environmental values.
- (c) Appraisal of the effects of appropriate alternatives and uses on the soil and water resources.

The overall goal is the avoidance of costly mistakes in terms of soil, water, and environmental damage for both long-term and short-term project proposals. Among other things, this activity is needed to keep water clean.

Included will be job opportunities for local people in obtaining resource facts in the acceleration of developing local soil and water protection standards for the 1,100 municipal water supply watersheds that occupy 40 million acres of valuable timberlands. Especially important are the 700 watersheds which supply municipal and domestic water to small, rural communities where the water is not adequately treated and where, under the timber harvest program, increased logging activity will occur.

The accomplishment of these objectives will be directly aided by the employment of Indians and other local people in rural areas. The job opportunities for earning adequate income by local people will aid in promoting greater income stability and additional sources of income from expanded resource uses.

Examples of Accomplishments

Increasing emphasis is being placed on getting soils, geologic, and hydrologic information into project design. On the Mendocino National Forest in California the landscape architect, the ecologist, and the soil scientist have



developed the landscaping details for a newly constructed forest highway. Similarly on the South Tongass National Forest in Alaska, some 150 acres of road cuts, fills, and other bare soil areas were treated. On the El Dorado National Forest in California, a prescription involving soil trenching, seeding, mulching, and irrigation was developed for the purpose of stabilizing the exposed soils on a set of ski runs in the Lake Tahoe area.

The watershed scientist on the Sitgreaves National Forest was instrumental in determining that an Arizona Game and Fish Lake was leaking and would not be suitable for recreation purposes during low precipitation periods. Geologic investigations identified the fault through which the reservoir was losing the water and recreation development is being withheld pending repair of the leak. Potentially, this action could save about \$150,000.

On the Siskiyou National Forest in Oregon, soil protection standards have been developed that specifically relate to compaction damage through the use of heavy logging equipment during periods of wet weather.

Resource protection requirements and design services were provided on over 1,000 projects in fiscal year 1970.

(2) Reconnaissance surveys: soil, water, geology, and hydrology (\$1,227,000)

An increase of \$216,000 will be used to obtain resource inventory on an additional 2 million acres of National Forest lands in rural America. These inventories conducted by scientists with the aid of temporary technicians, provide selected basic information that is needed for both short- and long-term planning efforts such as timber management planning, transportation planning, and both the management plan and study phase of the Wild and Scenic Rivers program.

As management and development activities move increasingly into the remote, more difficult, and more fragile areas, the need for at least minimal levels of basic information about the watersheds becomes more critical. Such information is essential in the support of multiple-use planning on a broad-scale basis in the nonmetropolitan areas of the nation. Information provided by these reconnaissance resource surveys and inventories has and is being used in the development of many resource plans that directly aid local employment by sustaining or increasing economic activities such as timber harvest, reforestation, range improvement, wildlife habitat improvement, and recreation.

Examples of Accomplishments

In fiscal year 1970, reconnaissance surveys and inventories were conducted on over 7 million acres.

(3) Surveillance of management activities (\$615,000)

An increase of \$180,000 will permit water condition and trend studies to be started at 14 additional locations, making a total of 55 locations receiving this service. This program is necessary to:

- (a) Provide surveillance that assures National Forest uses and programs are compatible with the protection of man's environment, especially enhancement of water quality.
- (b) Identify streams with existing or emerging water quality problems so that corrective action can be formulated and implemented.
- (c) Meet constantly increasing demands for documenting the effects of activities on the quality of soil and water in relation to existing State and Federal standards.



There are approximately 4,000 designated watersheds on National Forest System lands including 1,100 which are the principal source of community water supplies.

The program is guided by scientists and provides opportunities for the employment, development, and training of area residents to carry out development, maintenance, and data collecting aspects of the surveillance system.

There will be at least one additional monitoring station on a designated watershed in each region such as rivers in the Wild and Scenic Rivers Act, Boundary Waters Canoe Area in Minnesota, watersheds having high recreation use, and watersheds with sanitation treatment systems needing correction.

This surveillance program includes:

- (a) General evaluation on the effect of land, vegetation, and soil management practices on the soil and water resource.
- (b) The effect of increasing public uses of water discharging from National Forest System lands.
- (c) Determination of the quality of water leaving the National Forest.

The purpose of this continuing program is to:

- (a) Provide improved watershed protection through early identification of potential changes and trends in water quality that may occur in accommodating increasing use and development of resources associated with existing and accelerated programs, and new projects so that prompt adjustments or corrective action can be undertaken.
- (b) Provide a sound management basis for evaluation and interpretation of technical data on the effect of land use activities upon the soil and water resource.
- (c) Provide methods and procedures for predicting effects of land management activities on water behavior and quality of the soil and water resource in rural areas.

The continued work involves 41 surveillance stations in 19 States, and a reconnaissance survey involving selected water quality criteria for surface waters in Arizona and New Mexico. The sampling covers such diverse activities and areas as timber harvest in fragile areas, mineral developments, Boundary Waters Canoe Area, and suspected pollution problem sites where people physically use the water resource.

To meet the national policy for non-impairment of existing high quality waters, the local water quality standards are translated into design and performance limits and controls for action programs on the ground.

(4) Watershed restoration (\$1,410,000)

An increase of \$1 million is requested for the restoration and maintenance of surface disturbed areas to enhance the quality of the environment and restore productive capacity of renewable resources. High priority projects to be undertaken include:

- (a) The South Fork Salmon River Project (Idaho) where sedimentation has severely damaged anadromous and resident fisheries of regional and possibly national importance.





- (b) The Palzo tract project (Illinois) where chemicals and sediment from old surface coal mining operations have seriously degraded water quality and caused the United States to be cited in court by State water quality authorities.
- (c) South Fork Holston River and New River Watershed (Virginia) where sedimentation from old manganese mining operations affect stock water, wildlife and resident fisheries.

Restoring the hydrologic functioning of rural lands damaged beyond the point of natural recovery is essential to protecting the beauty and quality of the rural environment. This is a continuing program planned to:

- (a) Meet soil stability and water quality requirements.
- (b) Encourage the orderly development of watershed resources.
- (c) Repair degraded watersheds.
- (d) Provide continuing maintenance to projects completed to keep them effective.

These funds will be used in providing opportunities to utilize the skills, and to furnish jobs and timely income for Indians and other local people in rural areas of low income and critical underemployment. Illustrative of some of the specific activities are:

- (a) Emergency treatment and maintenance for the highest priority areas in the 184,000 acres of National Forest System lands burned annually by wildfires.
- (b) Being responsive to treatment and maintenance needs on thousands of miles of abandoned roads and trails that are the greatest contributors of sediment, uncontrolled runoff, and local problems of flooding and inability of the water supply to serve agricultural, domestic, or recreational needs.
- (c) Maintenance on the highest priority areas for the 250,000 acres of eroding and gullied lands treated during the last 5 years.
- (d) Removal of debris in stream channels above reservoirs and in anadromous fish streams.

#### Examples of Recent Accomplishments

Restoring damaged watersheds. Rehabilitation of damaged areas is progressing in all parts of the country, but much of this work still needs to be done. Rehabilitation work is coordinated with other resources and service divisions to accomplish an integrated program of management under multiple use.

In fiscal year 1970, Forest Service crews treated and stabilized:

Acres of sheet eroded and deteriorated areas .....	20,000
Miles of gullies .....	100
Miles of streambanks .....	100
Mile of shorelines .....	1
Miles of roads and trails .....	1,200
Acres of lands disturbed by surface mining and prospecting .....	400

Treatments to aid in restoring favorable watershed conditions on lands damaged by wildfire continued. Emergency measures (initial treatment on new burns and maintenance on older burns) were applied to 10 fires on 25,000 acres that required onsite protection and posed threats to life, property, public health, and watershed functioning.



Priority attention was given to areas damaged in Virginia and West Virginia by Hurricane Camille. There were 75 miles of clearing channels of debris obstruction, 38 miles of channel improvement, 1,200 feet of gabion structures, and 64 stream improvement structures to halt channel deterioration and to prevent subsequent surges of runoff with localized flood and sediment potential. The Forest Service worked effectively with State fish and game departments to protect and improve fisheries habitat. The work provided a significant amount of temporary employment for residents of this disaster area.

(5) Wild and scenic river studies (\$600,000)

An increase of \$194,000 is needed to carry out continuing studies on eight of the nine study rivers for which the Secretary of Agriculture has responsibility under the Wild and Scenic Rivers Act (PL 90-542). This Act requires that studies be made and reports prepared by the Secretaries of the Interior and Agriculture for 27 rivers as potential additions to the National Wild and Scenic Rivers System. All studies are cooperative endeavors with States, Federal agencies, and other interested parties participating.

The Forest Service is the lead agency for Agriculture's river study work. The nine rivers for which Agriculture has study leadership responsibility are: Chattooga in North Carolina, South Carolina, and Georgia; Flathead in Montana; Illinois in Oregon; Moyie in Idaho; Pere Marquette in Michigan; Priest, St. Joe, and Salmon (Main Stem) in Idaho; and the Skagit in Washington.

The funding for fiscal year 1972 will largely complete the Pere Marquette River study and permit work to continue on the seven other remaining Agriculture-led river studies. It also provides recognition for employment of local people in obtaining data on resource uses and in measuring and evaluating productive capability of soil and water resources.

Examples of Accomplishments

In fiscal year 1970, study efforts were essentially completed on the Chattooga River, and substantial work was accomplished on the Pere Marquette; less intensive starts were made on the remaining rivers. Also, a National Forest contribution was made to the Interior-led Clarion River study in Pennsylvania.

(6) Soil and water resource analysis, planning, predictions, and evaluation (\$1,560,000)

An increase of \$310,000 is needed to accelerate soil and water resource aspects of broad interdisciplinary environmental planning. Priority will be given to areas with critical underemployment by providing temporary job opportunities and training of local technicians in strengthening, at the forest level, the base upon which resource and management projects are planned, implemented, and evaluated in protecting the environment.

This involves the skills and knowledge of scientists, aided by technicians recruited from students and local residents, in determining the response of forest lands to the multiple activities and uses that may be applied to them. It includes an analysis of interrelations between various factors of the environment, and predictions regarding the soil and water outputs that will probably be associated with given management alternatives. It provides guidance for:

- (a) Maintaining soil stability and productivity.
- (b) Avoiding watershed damage.
- (c) Managing floodflows.



- (d) Avoiding flood-prone areas.
- (e) Reducing sediment loads.
- (f) Increasing the yields or improving the timing and quality of waterflows as the various resource development and management operations take place.

This program provides information essential to:

- (a) Development of the detailed environment statement required by the National Environmental Policy Act of 1969 (PL 91-190).
- (b) Comprehensive management planning.
- (c) Meet the President's request for an increased effort in establishing wilderness areas.

This program will be accelerated to encompass 57 watersheds in fiscal year 1972. It will include work for intermittently employed technicians in such key areas as the Idaho Batholith where sediment problems pose a major threat to the Salmon fishery, the Lake Tahoe Basin, the Appalachia Region, the Boundary Waters Canoe Area in Minnesota, the major timber management and road activities in Alaska, California, Montana, Oregon, and Washington, and the important range, wildlife, and multiple-purpose activities in Arizona and New Mexico.

#### Examples of Accomplishment

Soil and water resource analysis, planning, predictions, and evaluations on the Mark Twain and the Clark National Forests in Missouri have led to a better understanding of water movement in Karst areas. They have shown that much of the rainfall that falls on such areas moves rapidly into and through underground caverns in the underlying geologic formations and that the effects of management activities on the water resource often appear in areas well outside the area to which the activity is applied. Through this work, watershed planners have become aware of dam feasibility problems not previously recognized and the dangers associated with using natural depressions or "sinks" on the ground surface for the dumping of refuse.

Soil and water resource analyses, planning, predictions, and evaluations were made on 35 watersheds during fiscal year 1970.

#### (7) Detailed surveys (\$850,000)

These are intensive surveys designed to provide the technical information and scientific interpretations needed to aid in the design of projects or programs for a specific unit of land in nonmetropolitan areas.

The sound and efficient use of National Forest System lands must be in accord with the capabilities of the soil and geologic resources and satisfactory hydrologic conditions in the watersheds. As overall use of the land base expands and becomes more intensive, the more critical becomes the need for detailed technical (physical, chemical, biological) information about the basic resources and their functioning.

To provide detailed information for priority watershed areas it is planned to survey 1.8 million acres in fiscal year 1972.





Examples of Accomplishment

To provide soil information for a wide variety of planning efforts on lands within the Cal-Neva Resource Conservation and Development area, a detailed soil survey was initiated on some 280,000 acres of the Modoc National Forest in California.

Because of the important environmental issues involved, a detailed, comprehensive hydrologic survey has been initiated on the White Clouds area of the Challis National Forest in Idaho.

A water quality and sanitation survey was conducted in cooperation with the State Board of Health on a 12,500-acre watershed on the Homochitto National Forest in Mississippi. The scope of this survey included examinations of water supply and quality sewerage and solid waste disposal, agricultural pollution, and a vector study. This watershed contains the site of a proposed recreation lake.

The fiscal year 1970 goal of 2 million acres was reached.

(8) Water yield improvement (\$480,000)

This program, which helps individuals and communities in rural areas improve their quality of life, is an integral part of multiple-use management. Specific water resource related outputs of the program include:

- (a) Augmentation of existing water supplies.
- (b) Reduction in sediment yields and flood flows.
- (c) Protection and enhancement of water quality.
- (d) Better timing of waterflows.

However, additional outputs achieved through the program include:

- (a) Improved carrying capacity for livestock.
- (b) Improved fish and wildlife habitat.
- (c) Reduction in hazard from wildfire.
- (d) Maintenance of soil productivity.
- (e) Reduction of soil movement and/or loss.
- (f) Improved water oriented recreation environment.

The Forest Service water yield improvement program has been limited principally to four pilot projects. One of these projects is a joint administration-research project being carried out under a cooperative agreement with, and partially financed by, the Salt River Valley Water Users Association in Arizona.

Costs of Forest Service water yield improvement work are very favorable when compared with alternative methods for water supply augmentation.

The water yield improvement activity for fiscal year 1972 will consist primarily of maintenance of existing water yield improvement projects to insure continuation of the full effectiveness of the work done to date. There will also be some additional work on continuing projects.



Examples of Accomplishment

Water yield improvement accomplishments on National Forest System lands during fiscal year 1970 included:

- (a) Six thousand nine hundred thirty acres of permanent conversion from deep-rooted, low value brush to shallower rooted, high value grasses in Arizona, southern California, Utah, Colorado, and Wyoming, with an estimated increase in water yields of about 1,500 acre-feet of new water per year, and a reduction in sediment of about 16,000 tons per year.
- (b) Treatment of 20 acres for water control in Arizona, to augment critical low flows during the summer months and added to available groundwater supplies.
- (c) Hydrologically designed timber harvest was applied on about 15,000 acres in the snowpack zone of Arizona, New Mexico, Oregon, and Washington with an estimated initial increase in water yields of about 3,300 acre-feet.
- (d) Maintenance of previously completed water yield improvement projects in California, Colorado, and Arizona.

(9) Water use requirements and availability (\$244,000)

In the West, particularly, more and more demands are being made upon available water supplies. The Congress and the courts have determined that the United States has a right to reasonable use of water on National Forests reserved from the public domain except those waters appropriated before the National Forests were created. The objective is to obtain sufficient quantities of water in accordance with legal authority for the administration and development of the National Forest System. This project on a watershed basis includes:

- (a) An inventory of present and foreseeable needs.
- (b) A determination of water availability.
- (c) The potential for increasing yields in water-short areas.
- (d) Action to secure the water needed for National Forest purposes.

The western States have indicated their interest in having the Forest Service complete this program as rapidly as possible. During fiscal year 1970, the field inventory of Forest Service water uses was about 60 percent completed. A major part of this project is expected to be completed by 1975.



## GEOGRAPHIC BREAKDOWN OF OBLIGATIONS

## Soil and Water Management

<u>State</u>	<u>FY 1971 estimate</u>	<u>FY 1972 estimate</u>
Alabama .....	\$40,000	\$50,000
Alaska .....	310,000	540,000
Arizona .....	676,000	715,000
Arkansas .....	90,000	110,000
California .....	750,000	1,030,000
Colorado .....	510,000	615,000
Florida .....	20,000	35,000
Georgia .....	220,000	255,000
Idaho .....	575,000	986,000
Illinois .....	40,000	150,000
Indiana .....	20,000	20,000
Kentucky .....	40,000	70,000
Louisiana .....	20,000	25,000
Michigan .....	70,000	95,000
Minnesota .....	270,000	310,000
Mississippi .....	20,000	35,000
Missouri .....	170,000	170,000
Montana .....	475,000	650,000
Nevada .....	70,000	90,000
New Hampshire .....	50,000	50,000
New Mexico .....	155,000	285,000
North Carolina .....	60,000	80,000
Ohio .....	20,000	20,000
Oregon .....	330,000	460,000
Pennsylvania .....	50,000	50,000
South Carolina .....	50,000	60,000
South Dakota .....	50,000	72,000
Tennessee .....	40,000	50,000
Texas .....	40,000	50,000
Utah .....	510,000	550,000
Virginia .....	60,000	100,000
Washington .....	500,000	620,000
West Virginia .....	50,000	90,000
Wisconsin .....	115,000	145,000
Wyoming .....	130,000	163,000
<b>Total .....</b>	<b>6,596,000</b>	<b>8,796,000</b>





MINERAL CLAIMS, LEASES AND PERMITS

1970 .....	\$4,758,000
1971 .....	5,034,000
1972 .....	4,884,000
Decrease .....	-150,000

A decrease of \$150,000 is proposed to provide funds for higher priority Forest Service programs.

Mineral claims, leases and permits (\$2,297,000, a decrease of \$53,000)

Mineral operations conducted under the 1872 mining laws are generally subject to minimal State or Federal legislative restraints. Safeguarding other resource values from serious and lasting damage is therefore dependent upon timely--often daily--contact with miners. Particularly during prospecting, miners build poorly designed and improperly located access roads. Bulldozer trenches are excavated only to comply with annual assessment work requirements. Timely supervision can avoid much damage to other resources.

Examination of mining claims is a time-consuming job for qualified mining engineers and geologists. To protect the public interest and encourage bona fide development, it is necessary to examine and report on claims:

- (1) For which patent applications have been filed.
- (2) Of doubtful validity that are being misused or that conflict with Forest Service programs.
- (3) Located in wilderness where applications for prospecting permits have been filed.

The mineral leasing job requires:

- (1) Review of applications for prospecting permits and leases to determine if mineral activities are compatible with other uses.
- (2) The preparation of stipulations and operating plans to protect the environment.
- (3) The preparation of mineral title reports on all acquired lands.
- (4) On-the-ground administration to ascertain that terms of leases, permits, stipulations and operating plans are understood and followed.



Examples of Recent Accomplishments

Mining claims. New reserves of uranium, copper, silver, gold, lead, zinc and molybdenum are in great demand by mining companies. Management of surface resources on mining claims was accomplished on 38,456 claims during fiscal year 1970, or an increase of 120 percent. A total of 3,811 mining claims were examined for compliance with the mining laws during the year. There were 85 mineral patent applications, involving 489 claims, pending at the close of calendar year 1969. Actions on 231 claims were completed during this period; 17 claims (5 applications) aggregating 263 acres were patented during the calendar year.

Only 19 applications under the Church-Johnson Mining Claims Occupancy Act were received and action was completed on 31 cases.

A total of 428 Occupancy Act applications have been received as of July 1, 1970. As of that date, 345 cases had been completed with fee title offered in 61, a lease offered in 123, and a Forest Service special-use permit granted in 11. Because applicants were not qualified under the law, 130 cases have been rejected.

Mineral leases and permits. Demand for low-sulphur coal that will reduce air pollution in urban areas is very high. Exploration for oil and gas and phosphates continues at a high level. Some 14,500 leases and permits were active during fiscal year 1970, thus requiring Forest Service administration to protect the environment and coordinate uses. Nearly 3,000 sales and free use permits were granted involving disposal of common varieties of mineral materials. More than 800 mineral operations were active on acquired lands as a result of reserved or outstanding mineral rights. These too, require action to avoid or reduce environmental degradation.

Total revenue from leases and permits on acquired lands amounted to \$6,213,227 during fiscal year 1970. This was more than a 12 percent increase over the previous year. In addition, an estimated \$23 million was received from leases and permits on public domain lands. Mine or well-head value of minerals from National Forest System lands during fiscal year 1970 is estimated to exceed \$100 million.

Special uses - non-recreation (\$2,587,000, a decrease of \$97,000)

Occupancy and use permits, easements and memoranda of understanding authorized 45,700 special land uses on 5.3 million acres of the National Forests in 1970. There is a constant turnover of these authorized uses of about 5 percent each year. The number of new permits issued has increased about 3 percent each year. It is estimated in fiscal year 1972 that the number will increase to around 48,300, covering a total of 5.7 million acres.

Users include public and private enterprise representing individuals, corporations and city, county, State and Federal government agencies. The special land uses are grouped in eight broad categories consisting of about 60 kinds of use excluding recreation. They are:

- (1) Agriculture.
- (2) Community improvement.
- (3) Industrial.
- (4) Public information.
- (5) Research, study, and training.
- (6) Transportation.
- (7) Utilities and communications.
- (8) Water.



Areas of particular interest are antiquities, electronic installations, fences, pastures, powerlines, reservoirs, roads, telephone lines, and water transmission facilities.

Special land uses assist economic development of rural areas by making suitable land available to farmers, ranchers, and local communities. The Federal Government is the major landowner in many localities. Denial of the use of National Forest System land would create hardships on the local communities, deter further business development, and materially affect on-going Federal programs.

More than 25,000 new applications, applications for amendment, applications for transfer, and inquiries were received in fiscal year 1969 from individuals, companies, corporations, and city, county, and State governments, as well as Federal agencies, to fill their needs. Of this total number, approximately 6,500 are new applications.

Based on past experience, less than a third of the new applications can be approved as being compatible with resource and environmental factors and the needs of the general public. Each new application requires an impact survey, multiple-use report or comparison with multiple-use plan. Investigations identify conflicts with management plans and existing uses. Recommendations attempt to assure conformance with multiple-use and individual resource plans and programs and actions to protect the quality of the environment. A permitted use must be activated with improvements designed and installed or constructed in compliance with all existing laws, regulations, and local codes under a carefully drawn special-use document embodying all recommended protection measures. Of particular importance are the National Environmental Policy Act of 1969 (PL 91-190) and the Water Quality Improvement Act of 1970 (PL 91-224).

After permits are issued, periodic compliance inspections are made to determine whether the authorized conditions, responsibilities, and duties are met according to acceptable standards.

These standards are those which:

- (1) Maintain acceptable levels of water and air quality.
- (2) Protect the natural resources from excessive soil erosion.
- (3) Prevent unnecessary damage to natural beauty and esthetics of the environment.
- (4) Protect renewable resources such as timber, forage, and wildlife from careless or wanton damage.
- (5) Do not unnecessarily increase fire hazard.
- (6) Protect the public and other users from physical hazards.
- (7) Maintain fees or rentals equal to the value of the use authorized comparable with fair market value.

Of the total funds available, about \$50,000 would be used to develop and maintain information on National Forest archaeological sites and to protect such sites and artifacts from vandalism or other damage by unauthorized persons, including, if necessary, excavation of endangered sites on an emergency basis.

Under special authorities almost two-thirds of all permitted uses are allowed without charge. The remaining one-third pay fees for the privilege of occupying National Forest land. Fiscal year 1970 receipts from special land uses were \$1,049,971, an increase of \$212,933 over the previous year. In addition, to the actual receipts collected by the Forest Service, at least \$2 million of assistance, through free permits, should be recognized. The total direct monetary value of receipts and benefits is over \$3 million. However, many of these free permits no longer qualify, and they will be converted to charge permits. There will be a proportionate increase in receipts to the Treasury.







Land use and esthetic problems are created by the proliferation of electronic uses under special-use permits. Careful planning could have precluded the separate buildings.



Proposed microwave station designed to blend with other structures nearby and fit into the surroundings. Modernized concept encouraged and worked out with assistance of Forest Service planners.

Figure 6



LAND CLASSIFICATION, ADJUSTMENTS, AND SURVEYS

1970 .....	\$7,122,000
1971 .....	7,089,000
1972 .....	7,089,000

It is proposed to continue this program at the 1971 level.

Subactivities of this program are identified below:

(1) Land Classification (\$419,000)

The function is to structure and recommend programs concerning the extent, location and composition of the National Forest System that will most effectively further national objectives for betterment of rural areas. Purposes and activities are to:

- (a) Improve the land base to provide for current and prospective public needs for outdoor recreation space.
- (b) Improve the landownership pattern to facilitate development and use of recreation, timber, range forage, water, and wildlife resources which can contribute to growth of rural economies.
- (c) Encourage land adjustment for protection and improvement of watersheds.
- (d) Promote stability and encourage economic growth of communities in and near areas in the National Forest System.
- (e) Improve efficiency in the administration of public land programs.
- (f) Improve land use patterns to promote the preservation and enhancement of the environment.
- (g) Survey the degree of utilization of public lands pursuant to Executive Order 11508.

Financing at the level indicated will enable Forest Service to meet pressing needs for:

- (a) Identification and detailed analyses of areas within the National Forests and National Grasslands to determine the land exchange and land consolidation which should be made to best accomplish national objectives for rural areas.
- (b) Determination of the merits of opportunities to transfer Federal land to or from the National Forest System, including consideration of lands claimed by Indians, and jurisdictional transfers at numerous Federal water control projects important for outdoor recreation. Recent legislation and revised interdepartmental agreements are resulting in an increasing number of such cases.
- (c) Analysis and classification of lands with potential for national recreation areas, monuments, wildlife preserves or other special status.
- (d) Consideration of applications made by the State of Alaska for State land selections. Rapid acceleration of selections is expected.
- (e) Further action based upon the survey of public land utilization made pursuant to Executive Order 11508.

Continual review of the location and extent of the National Forest System components is desirable to determine the direction land use and ownership patterns should take in relation to new developments and needs. The 154 National Forests and 19 National Grasslands located in 44 States and Puerto Rico include more than 40 million acres of non-Federal land. Programs for consolidations of landownership within existing boundaries of these units need to be based upon sound consideration of their short and long-range effects.

Water-oriented recreational use of land at or near Federal reservoirs has assumed large proportions and often is a significant economic factor in the locality. An interdepartmental agreement exists on management of land at Department of the Army reservoir projects. Also the law provides for



transfers of land at Bureau of Reclamation projects where such projects are located within or adjacent to National Forests. Accelerated action concerning land jurisdiction at more than two dozen reservoirs in and near National Forests is necessary to:

- (a) Avoid duplication of plans and programs.
- (b) Utilize existing National Forest organizations for most efficient management.
- (c) Assure timely and economical development of recreation and land use facilities.

Elsewhere, expanded activity in transfers of public land jurisdiction based upon joint studies with the National Park Service or Bureau of Land Management is called for in the interest of more economical or effective public and private service.

#### Examples of Recent Accomplishments

Criteria were developed for the approval of State land selections from National Forest areas in Alaska where the State is authorized to select up to 400,000 acres of National Forest land.

Numerous interdepartmental transfers of land jurisdiction were accomplished in the interest of efficient administration of public land programs.

#### Examples:

- (a) An Army-Agriculture interchange involving about 1,500 acres resulted in transfers of suitable reservoir project lands for resource management as part of the adjacent Hoosier National Forest in Indiana, and transfer from the National Forest of tracts needed for project structures.
- (b) Transfers of lands from the public domain to National Forests involved about 7,000 acres in Montana, 12,000 acres in Nevada, and 6,000 acres in New Mexico. Transfers from National Forest to public domain involved over 21,000 acres in Colorado.
- (c) Transfer of 1,500 acres from the Bureau of Reclamation to the Tahoe National Forest in California for recreation and other National Forest purposes around Prosser Reservoir of the Washoe Project.
- (d) Transfer to the National Park Service of 455 National Forest acres within the shoreline zone of the Pictured Rocks National Seashore in Michigan.

In response to Executive Order 11508 lands under Forest Service jurisdiction, except lands in the National Forest System, experimental forests and ranges, were reviewed and ranked according to priority of need.

In order to better conform National Forest boundary locations with foreseeable needs for National Forest programs, boundaries were extended to include an additional 7,300 acres and retracted to exclude over 21,000 acres.

## (2) Land Exchange (\$3,241,000)

Properly conceived land exchanges result in alleviating the need to construct certain road segments, the location and marking of property lines, the issuance of certain special-use permits, and other management costs. The consolidation of ownership through land exchanges results in a 10-year cost avoidance for every dollar spent in accomplishing the program. Selected examples of estimated cost avoidance which will result during the next 10 years, from the fiscal year 1972 exchange program, are:

<u>Reductions</u>	<u>Units</u>	<u>Amount</u> (in thousands)
(a) Property lines and corners .....	1,900 miles	\$2,000
(b) Road construction and maintenance .....	330 miles	9,900
(c) Use permits and occupancy trespass ....	600 cases	2,400
(d) Road right-of-way needs .....	400 cases	280
Total .....		14,580





Material revenue increases to the United States Treasury can also result through well planned exchanges. Access road problems can be eliminated and make heretofore inaccessible mature timber stands available for harvest to the mutual benefit of the United States and timber companies in need of timber supplies. The rural economy is also benefited. Significant benefits can be realized for both the United States and private owners engaged in livestock operations through the consolidation of ownerships, thus reducing costs and improving management of the ranges.

Carefully designed land exchanges can make material contributions in bettering rural America and the communities located within or near the boundaries of the National Forest System. Farmers and ranchers operating marginal operations can frequently acquire the adjoining National Forest System lands suitable for grazing, thus permitting development of an economic unit. Communities are frequently aided through exchanges that provide lands for expansion and development.

The fiscal year 1972 land exchange program will involve the examination and appraisal of 500,000 acres involving an estimated 400 proposed exchanges. The land the Government gives and receives in exchanges must be examined and appraised. Following examination and appraisal, negotiations are expected to be completed and 218 cases approved during the fiscal year involving a total of 209,600 acres.

#### Examples of Recent Accomplishments

In fiscal year 1970, 183 land exchanges were approved. In these exchanges, the United States will acquire 126,185 acres valued at \$24,669,367 and will grant 89,535 acres valued at \$21,946,470. A total of 161 land exchanges were fully completed with title to 79,950 acres passing to the United States and 53,043 acres passing to the other landowners. The net increase in National Forest acreage was 26,907 acres.

### (3) Land Status Records and Land Line Location (\$2,388,000)

- (a) Land status records. This is a systematic search of records and the presentation in plat, tabular record, and supplementary form of all ownership interests, and Congressional and administrative actions which limit or otherwise affect administration of the National Forest System or the use of adjoining lands by the owners thereof. It is the record of what land interests the Forest Service must administer. Significant progress is necessary to meet the expanding need for correct currently available records of Forest Service landownership, use and encumbrances.

The National Forest System was created and altered to meet changing needs by many Acts of Congress and administrative actions in accordance therewith. Some 160 million acres were reserved from the public domain.

Over 27 million acres were acquired by several agencies of Government. Over the years many exchange, acquisition, and disposal actions have occurred. The great number of records of the status of such lands as to ownership, encumbrances, and restrictions on use were never satisfactorily assembled, checked, and placed in a system readily used and currently maintained as changes occurred. As a result, the Forest Service has been handicapped in meeting the impact of the vast increase in resource use in recent years.

A system has been developed to assure that accurate status information is assembled and records kept current at a central point and supplied to all field offices of the Forest Service. In converting to this system, all public records are reviewed and entered. Maintenance of records is done in the nine regional offices and supplied currently to some one thousand field offices. The project is about 70 percent completed. The conversion job is scheduled for completion by the end of fiscal year 1974.





The systematic search and review of records in the conversion project continues to reveal, and identify more clearly, many parcels and general areas which have previously been misunderstood, identified inaccurately, or overlooked in administration due to inadequate records and poor identifying ties between records and ground location.

Users of the new system records (Forest Service and other Government agencies, adjoining, and other public users) are enthusiastic about these records. They give confidence in administration and reduce areas of potential ill-will with adjoining and users of public and private resources.

#### Work Proposed for 1972

	1970 <u>Actual</u>	1971 <u>Planned</u>	1972 <u>Estimated</u>
Townships completed .....	1,660	1,780	1,700

(Total program 17,000. Accomplished through 1970 - 12,660)

- (b) Land line location (cadastral program). Accurate plainly marked property lines are essential to effective management of lands and land based resources. Significant progress in this activity must be made so that National Forest lands can be managed to meet Forest Service multiple use-sustained yield policy and contribute to the stability and growth of the rural economy.

An inventory of property corners and miles of property line to determine the ownership of boundaries between lands of the United States administered by the Forest Service and those of all adjoining ownerships follows:

1,160,472 corners on property lines  
210,924 additional corners needed for control  
272,487 miles of property lines

Many of the corners were established 50 to 200 or more years ago. Over 30 percent of these corners have disappeared because of decay and neglect. Skillful search for corners in recent years indicates that some of these corners were never established even though the official survey record indicates otherwise.

In public land States, surveys by the United States were mainly of township and section exteriors as a basis for sales and grants of the public lands. Subdivision of sections by cadastral survey was not required to issue patents based on aliquot parts of sections. Sales and grants from the sovereign were expected to continue; therefore, the need for the United States to maintain corners and lines on the remaining Government lands was not present. This situation was changed by the first large scale reservation of public lands authorized by the Forest Reserve Act of March 3, 1891 (26 Stat. 1103). Over 160 million acres were reserved from the public domain for the National Forests. In addition, the United States has purchased some 27 million acres since 1911 and placed them in the National Forest System. This created the need for the United States to know the legal boundaries of its lands in order to develop their full public use under permanent management. However, there was little provision for this work until 1958, when the first modest land line location appropriation was made to the Department of Agriculture. Since then annual appropriations for this program have been made. These are being used primarily to search for corners to determine the true situation and to prevent further loss. The search thus far has revealed that about 32 percent of the previously established corners are missing and must be restored through relatively expensive cadastral surveys. The search phase is also revealing that many corners are in such poor condition that



their loss is imminent. Those recovered under this program are being remonumented currently, or within a year or two.

The average cost to search out and permanently preserve a corner by remonumentation is \$60. The average cost to restore a missing corner by cadastral surveys is \$600.

The following has been accomplished since the program was initiated in 1958:

1958 - 1970

Corners:

1. Searched .....	229,999
2. Found acceptable evidence of corner .....	157,895
(a) Do not need remonumentation .....	37,228
(b) Need remonumentation .....	120,667
(1) Remonumented by Forest Service .....	62,177
(2) Remonumented by Bureau of Land Management/Forest Service cooperation.....	39,687
3. No acceptable evidence of corners found, cadastral surveys needed to establish corners .....	72,104
(a) Corners established by Forest Service cadastral surveys .....	21,560
(b) Corners established by Bureau of Land Management cadastral surveys .....	11,558
4. Miles of cadastral surveys run to reestablish missing corners and establish new corners required:	
(a) By Forest Service .....	8,900
(b) By Bureau of Land Management .....	6,025

Property Lines:

Miles marked to standard .....	12,590
Miles marked to interim standard .....	9,053
Miles inspected and maintained .....	3,144

The search and remonumentation of "thread hanging" corners have been carried out based on most urgent needs, and to the extent possible, on cooperative opportunities with adjoiners. For every corner searched in time and preserved a future expenditure of nearly \$600 is saved (Figure 7). This is why most of the appropriation has been used in the "search and rescue" phase. Most of the expensive job of restoring missing corners has been postponed.

Since 1966 an annual transfer of part of the land line location appropriation has been made to the Department of the Interior for use by the Bureau of Land Management. This is to obtain urgent cadastral surveys to reestablish corners on public domain lands administered by the Forest Service, that were found to be missing during Forest Service corner search activities. The Bureau of Land Management has the authority for cadastral surveys of such lands. In fiscal year 1971, \$270,000 was transferred. The same amount is planned for transfer in 1972. Most of these funds are used in the States west of the Mississippi River, since this is the area of public domain lands. The Forest Service makes careful search for corners in critical areas where property lines are an issue with adjoiners, or where such lines must be established before timber sales or other public uses may be undertaken. Cadastral surveys to reestablish missing corners are then programed jointly by Bureau of Land Management and the Forest Service.



The work to be done under this program is shown in the following table. This work is carried on in every State in which the Forest Service administers lands:

Work Proposed for 1972 as Compared with 1971 and 1970

	<u>FY 1970 Accomplished</u>	<u>Planned FY 1971</u>	<u>Planned FY 1972</u>
<u>Corners</u>			
Search .....	27,945	27,200	27,200
Remonument .....	12,651	11,700	11,700
Establish .....	1,325	1,300	1,300
Maintenance .....	450	600	600
<u>Miles</u>			
Locate and mark:			
To full standard .....	2,125	1,450	1,450
To partial standard .....	620	850	850
Maintenance .....	359	1,000	1,000

Examples of Accomplishment

The accomplishment since 1958 in comparison to the total inventory of property corners and lines is as follows:

Corners searched ..... 17 percent of total  
Property lines marked ..... 8 percent of total

Work has been programed in areas of most urgent need, thus obtaining maximum immediate benefits.

One-third of the corners revealed as missing by the corner search phase to date has been reestablished by cadastral surveys. This work is also done where most urgently needed, thus obtaining maximum immediate benefits.

(4) Geometronics (\$1,041,000)

Multiple use planning requires a particular knowledge of the terrain, the extent and location of the natural resources and how these resources are related and tied in with existing and planned transportation and recreational facilities. Elevational information is essential in the planning of transportation systems, timber sales and recreational facilities.

Technological advancements have provided new means of improving and extending management of National Forest resources and related facilities. The adaptation and development of such techniques as the analytical approach to control extension for the essential control of remote sensing is being pursued. This promises significant reductions in field-going operations. Remote sensing investigations are underway in providing display mechanisms for interpreting, plotting, digitizing and retrieving of such data. This promises greater speed, greater reliability, and comparability of terrain data. This may include material such as tabular data, selected map features, resource classification by imagery characteristics, and orthophoto mapping.

These developmental operations are supplemental to and coexistent with the acquisition of conventional line mapping in the quadrangle format for the National mapping program.





The data are needed on some 640,000 square miles of area within the National Forests for a wide range of engineering planning, timber, range, wildlife control, recreation facilities, and watershed management activities. Approximately 57 percent of this area is adequately covered in National accuracy line mapping. The scale, format, and accuracy of this material would be such that it can be released to the U. S. Geological Survey and form an integral part of the standard topographic mapping program of the United States. Thus, duplication of effort is avoided, costs are reduced, and the availability of standard topographic maps is speeded up.

The funds for fiscal year 1972 would be used to secure aerial photography, establish horizontal and vertical control for an equivalent of 2,600 square miles of the area for which these data are needed. In addition, the funds would be used to prepare, from existing terrain data, bases on the scale and format needed for showing the interrelationship of all National Forest resources affecting the multiple use management of the National Forest System. The scale and format of the prepared material must be compatible with the scale of the aerial photographs used in the execution of resource inventory surveys. These data are transferred to the multiple use management plans by photogrammetric means.

Utilizing the terrain data and resource data procured through photogrammetric procedures, it is proposed to prepare several management bases on an adequate scale and format for approximately 8 National Forests.

		<u>1970</u>	<u>1971</u>	<u>1972</u>
Terrain Data (topographic)	thousands of acres .....	575	791	791
	square miles .....	898	1,080	1,080
Resource inventory data (planimetric)	thousands of acres .....	5,414	3,200	1,920
	square miles .....	8,459	5,000	3,000
General management	forests .....	5	10	8



# \$SAVER\$

It makes good cents (and dollars) to

SEARCH

and

RESCUE

for ↓ this

like this ↓ for (\$60)



Remaining evidence of  
Corner Location



Corner recovered, durable monument set and  
protected by guard post and signs

BECAUSE delay until this disappears will require  
a \$600 survey to reestablish the corner

## OUR RECORD

Savings effected by corner search and remonumentation accomplished  
under this program:

Fiscal year 1970 (12,651 corners remonumented x \$600)... \$7,590,600

Since start of program in 1958 (101,864 corners  
remonumented x \$600) ..... \$61,118,400

**S**earch

**A**nd

**V**erify

**E**valuate

**R**emonument

Figure 7

102YA24

102YA24

2

FOREST FIRE PROTECTION

1970 .....	\$29,655,000
1971 .....	30,333,000
1972 .....	30,305,000
Decrease .....	-28,000

A decrease of \$28,000 in public relations activities.

The objectives of the National Forest Fire Protection Program are to:

- (1) Hold fire losses to a level consistent with immediate long-range land management objectives.
- (2) Use fire to increase productivity of National Forest lands.
- (3) Reduce to tolerable limits the fire threat to life and resources in rural areas in case of enemy attack.
- (4) Accomplish the above objectives economically and with a high degree of personal safety.

This program is designed to protect all forest resources. It directly affects the quality of the environment by saving timber, protecting watersheds, scenic areas, wildlife, grasslands, and other land resources. It aims to prevent fires that smoke up recreation areas during the summer use period. Damage from uncontrolled fires becomes less tolerable each year as resource values steadily increase.

Land and resources protected by the Forest Service are subjected to more use by recreationists, travelers and others for special purposes, collectively increasing the risk from man-caused fires. Paradoxically, response of the land to good management practice often creates combustible fuels where few existed before. The challenge is to meet the burgeoning problem of increased hazard and risk. Wherever possible, effort has been made to make improvements in fire prevention, preparedness, suppression, and modification of fuels to reduce fire spread potential.

The proposed budget will be used to finance protection measures approximately as follows:

<u>Protection Measures</u>	<u>FY 1970</u>	<u>FY 1971</u>	<u>FY 1972</u>
	(in thousands)		
Fire prevention .....	\$4,056	\$4,152	\$4,152
Fire detection .....	3,837	3,929	3,929
Fire attack forces .....	16,538	16,931	16,931
Air operations .....	3,620	3,705	3,705
Fuel modification .....	346	353	353
Equipment development and testing .....	681	697	697
Studies, surveys, plans and training .....	577	566	538
Total .....	29,655	30,333	30,305

Examples of Recent Accomplishments

General. Major suppression efforts in 1970 employed many more women than ever before for a greater variety of jobs. They drove trucks, kept time, operated radios, handled supplies, cooked and did other jobs directly contributing to





firefighting. Minority groups were used as one of the largest forces for fireline duties. Their efforts were generally of a high order. More attention was given this year to the protection of timber, soil, streams and other parts of the environment in the actual firefighting job. The work was directed at preventing soil erosion, road damage, stream scouring and similar adverse effects upon the environment.

Mobilization. During 1970, the Boise Interagency Fire Center dispatched more than 8,000 firefighters and overhead to combat the huge fires in the Western States. Firefighting equipment, communication systems, infrared mapping devices, and transport aircraft were furnished to help control these fires.

Towards improved effectiveness. A periodic project in National Fire Planning, now underway, will produce plans for all areas of fire control and provide a basis for meeting future fire control objectives in a cost-effective manner. During 1970, a special task force has developed instructions which will incorporate the latest computer techniques in developing an optimum prevention, detection, and initial attack organization. These instructions will consider damage plus resource values to obtain the optimum mix of financing to meet the resource protection needs of the 1970s.

Fire prevention and law enforcement. A new fire prevention training film is nearing completion and national distribution is planned for early 1971.

Action on fire trespass cases during fiscal year 1970 resulted in collections of \$358,574.

Normally, about 25 percent of the man-caused fires of the country occur in the 11 Southern States. Giving particular emphasis to research needs and direction, a special task force of Forest Service and State fire leaders has been studying the fire prevention problem in this area. Their recommendations will be of material help in planning and directing prevention in this important fire area in the future.

Fuel treatment. Included in the fuel treatment program was an effort to add to a planned system of fuel breaks which will divide large blocks of high hazard fuels. Such a system, will reduce fire spread and intensity in the treated areas. Ultimately the result will be fewer acres consumed by wildfire, less resource damage, and a reduction in protection costs.

Air operations. Large modern helicopters proved their worth by delivering firefighters and their equipment, and by dousing fires with retardant drops from special sling buckets.

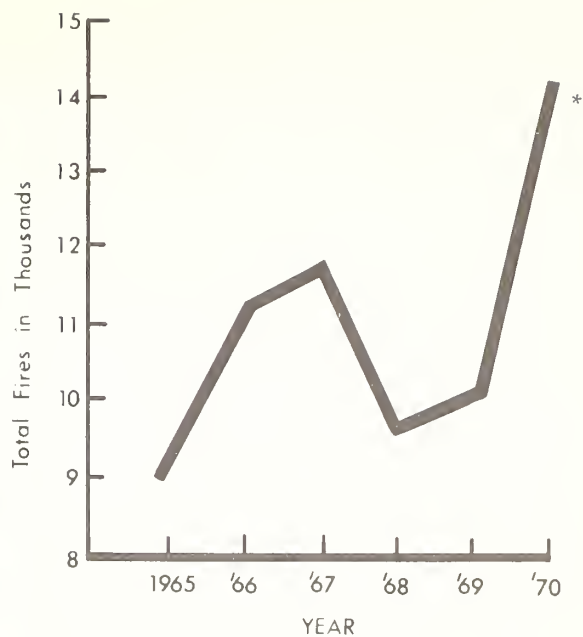
The Forest Service converted a P2V Navy surplus aircraft to an air tanker capable of carrying 3,000 gallons of fire retardant chemical slurry. Liquid concentrate retardant used extensively in Western States for the first time made a major contribution to the effectiveness of the P2V, other air tankers and helicopters. Liquid concentrate shows promise for reducing cost and providing greater versatility in adapting mixing facilities to temporary locations. These improvements are significant considering the 12 million gallons of retardant dropped during the 1970 season.

Equipment development. Two current equipment development projects are aimed at giving more treatment to 1,250,000 acres of logging slash each year. Their short-term goals are:

- (1) To evaluate and report on existing equipment for treating slash and other debris and develop new equipment.
- (2) Accomplish fuel treatment without creating a smoke problem. These projects are expected to produce equipment and methods for effectively treating a wide variety of forest fuels.



Fuelbreaks Give Firefighters a Better Chance to Control Large Fires.



Fire by Years within National Forests Protected Area. \*Jan. 1 — Oct. 31 only.



Upward Trends in Numbers of Fires Continue

Figure 8



MAINTENANCE OF IMPROVEMENTS FOR FIRE AND GENERAL PURPOSES  
(INCLUDING COMMUNICATIONS)

1970 .....	\$9,474,000
1971 .....	7,230,000
1972 .....	7,230,000

It is proposed to continue this program at the 1971 level.

The program provides for the maintenance of buildings, utilities, airfields, communication systems, and related facilities throughout the National Forests and National Grasslands to an acceptable standard. The replacement value of these improvements is in excess of \$300 million. It is essential that the physical plant upon which these activities depend be adequately maintained. These funds will be used to maintain the following:

<u>Type of facility</u>	<u>Number</u>
Fire lookouts, towers, and observatories .....	1,500
Dwellings, cabins, barracks, and trailers .....	5,400
Field offices .....	800
Storage and service buildings .....	7,000
Water and sewer systems .....	5,000
Radio units .....	22,100
Landing fields and heliports .....	500
Miles of telephone line .....	7,500
Miles of administrative fences .....	1,200

Maintenance funds are distributed to field units based on number of improvements by classes currently justified by program use and an analyzed unit maintenance cost.

In fiscal year 1970 and prior years, funds for construction of fire and general purpose improvements were provided under this activity. Beginning in fiscal year 1971, these funds were appropriated under the fund, Construction and land acquisition. The 1970 accomplishments are shown under the new Construction and land acquisition appropriation.





PAYMENTS TO EMPLOYEES' COMPENSATION FUND

1970 .....	\$1,100,209
1971 .....	1,459,000
1972 .....	<u>1,622,000</u>
Increase .....	<u>+163,000</u>

An increase of \$163,000 is proposed to reimburse the Employees' Compensation Fund, Department of Labor, in accordance with PL 86-767 (5 USC 785), which was enacted September 13, 1960, for benefit payments made from that fund to employees of the Forest Service who are injured while in the performance of duty. The 1971 payment was \$1,458,772. The payment for 1972 will be \$1,622,187.



WATER RESOURCE DEVELOPMENT RELATED ACTIVITIES

1970 .....	\$6,403,000
1971 .....	3,698,000
1972 .....	3,698,000

It is proposed to continue this program at the 1971 level.

The proposed level of funding will help avoid gross misuse of resources in the most sensitive areas and will enable the Forest Service to redeem the most crucial elements of the Department of Agriculture's obligation to water development projects of other agencies.

The construction agencies, frequently through separate Congressional authorization, initiate the projects and schedule the performance. The Forest Service cooperates in the planning, development, and management of the water and related resource development associated with National Forest System lands.

Each water development project poses resource problems and opportunities peculiar to the individual site under consideration, to adjacent and tributary lands, and to the associated rural area environment. This requires a comprehensive environmental impact survey by the Forest Service to determine the effect of each water resource development proposal on all the resources, facilities, and the rural areas affected by the project. These surveys determine the best pattern for multiple-use management of project associated land, prescribe the resource management adjustments needed to assure a maximum National Forest contribution to the water project, and identify Department-wide opportunities for utilizing project potential for the enhancement of rural America.

In addition to impact surveys, the work performed under this program includes:

- (1) Liaison with the construction agency to assure the benefits of a combined and harmonious interagency effort.
- (2) Treatment of lands, tributary to or within the project area to provide improved water yields and reduced sedimentation which will better serve operating requirements of reservoirs, maintain or increase the useful life of the project, and provide for public safety and enjoyment.

Work and financing planned for fiscal year 1972 is compared with that for fiscal year 1971:

	<u>Fiscal Year 1971</u>		<u>Fiscal Year 1972</u>	
	<u>No. of</u>		<u>No. of</u>	
	<u>Units</u>	<u>Cost</u>	<u>Units</u>	<u>Cost</u>
(1) Impact surveys and construction liaison ..	541	\$2,648,000	458	\$2,648,000
(2) Land treatment, soil stabilization and and cover improvement .....	<u>76</u>	<u>1,050,000</u>	<u>1/ 93</u>	<u>1,050,000</u>
Totals .....	617	3,698,000	551	3,698,000

<sup>1/</sup> Eight of these projects (\$191,000) represent Forest Service obligation to finance land treatments on National Forest lands at those PL-566 projects where work plans have been approved since March 21, 1966.



(1) Impact surveys and construction liaison (\$2,648,000)

Impact surveys delineate the effect, define necessary mitigating measures, and identify enhancement opportunities relative to proposed water resources developments associated with National Forests and National Grasslands. Reports resulting from such surveys document measures which are essential to the attainment of National Forest multiple-use objectives and identify how National Forest management can contribute to project purposes to optimize their economic and social contribution to rural America. To be effective, the surveys and reports must be concurrent with the construction agency's preliminary planning to permit their findings to be incorporated in the licensing or authorizing document.

Liaison with the construction agency during the construction period is necessary to facilitate coordination between the construction agency and the Forest Service. Protection of the land and resources, minimizing interference with regular protection and management activities, and facilitating construction agency operations are direct economic dividends derived from this program.

Experience has shown that without adequate analysis and liaison effort such as is provided by this activity, natural resources often suffer from enormous waste and misuse and the project works fail to make their maximum contribution. Natural beauty and high quality water are among those resources most susceptible to loss. The rising value of forest resources and constant increase in demands against the declining resource base requires increased perception, imagination, and thoroughness in the preparation of impact surveys. The impact survey effort and construction liaison work reflects an involvement at 458 projects. Based on an average project construction cost of \$30.5 million these 458 projects represent a total construction cost of about \$14 billion.

The enormous cost of this construction program associated with the National Forests provides some indication of extent of activity going on. A fiscal year 1972 investment of \$2,648,000 by the Forest Service (.017 of 1 percent of construction costs) will help assure that projects are constructed in maximum harmony and minimum conflict with associated land, resource, and human values. Forest Service impact survey and construction liaison work will continue on all projects at a sustained level of effort.

Fiscal year 1970 accomplishment included preparation of environmental impact survey reports for: Dos Rios Project, Big Creek Power Project, Uinta Unit-Central Utah Project, Days Creek Dam, English Ridge Dam and Northfield Reservoir.

(2) Land treatment, soil stabilization, and cover improvement (\$1,050,000)

Treatment of lands tributary to water resource development projects to reduce sediment yield or to modify the pattern of runoff lengthens the life and increases the utility of the water control structures. This work is done on National Forest System lands tributary to the project, only where hydrologic analysis and other elements of the impact survey determine that such work is needed and that benefits to the project purpose are clearly established. Treatment programs include the following:



- (a) Modifying the vegetation to decrease erosion, to reduce flood peaks, and to increase the annual quantity and improve the timing of water yielded from the tributary lands.
- (b) Clearing reservoir areas, where not done as part of construction, and keeping the reservoir free of debris to make the area safe for public use and to maintain scenic beauty.
- (c) Land treatment measures such as contour terracing, gully plugs, headwaters debris and flow retarding structures, and streambank and shoreline stabilization measures.

Essential land treatment and related measures are planned at 93 projects, including 8 PL-566 small watershed projects approved after March 21, 1966. Reservoir sweeping, debris and stump removal, and vector and aquatic weed control will be accomplished on about 37,000 acres at 47 projects in order to provide for public safety and user enjoyment of the reservoir area. At the remaining projects a combination of treatment measures, including some of the above, will be performed to improve water quality and quantity.

Fiscal year 1970 accomplishments included the application of land treatment measures at Sebastian Martin-Black Mesa, Monroe-Annabella, Trail Creek, Cottonwood, Vernon, Georgetown Creek, Star Valley-Dry Creek, South Fourche, Little Mulberry Creek, Johns Creek, Tesnatee Creek, Salt Lick Creek and Upper Leaf River PL-566 projects. About 660 acres of stumps were removed at 3 projects for protection of the reservoir users and for esthetic reasons, and reservoir sweeping and debris removal was accomplished on approximately 60,000 surface acres at 15 reservoir projects. In addition, measures such as gully stabilization, sheet erosion control, lakeshore stabilization, and contour trenching aimed at improving water quality and quantity were done at 35 projects.

(3) Public use, access, and management facilities

In fiscal year 1970 and prior years, funds for designing and developing public use facilities on National Forest System lands at, and adjacent to, project reservoirs built by other agencies were provided under this activity. Beginning in fiscal year 1971, these funds were appropriated under the fund, Construction and land acquisition. The 1970 accomplishments are shown under the new Construction and land acquisition appropriation.





FIGHTING FOREST FIRES

1970 .....	\$26,429,000
1971 .....	4,275,000
1972 .....	4,275,000

This program provides an initial amount for suppressing fires on National Forests and Grasslands which cannot be handled by the regular forest fire protection program. This initial appropriation is supplemented each year to the extent necessary to cover all emergency forest fire fighting costs.

Included are expenditures for men and equipment to control large fires. In addition, when critical conditions present an unusual threat, men are engaged in special efforts to prevent fires and temporary forces are used at strategic locations to be available to attack fast-spreading fires.

The volume and scope of emergency forest firefighting (FFF) varies annually according to severity of burning conditions and the extent of the forest protection program. These two programs are directly related and the cost of protecting the National Forests and Grasslands is the total sum of their respective expenditures.

Calendar Year 1970 Fire Season

The severe spring and summer drought spelled disaster for the Northwest and California during the 1970 fire season. Lack of rain combined with high temperatures created extreme fire danger in the western United States from July through October. It was the combination of bone-dry fuels, lightning, and careless man which caused huge conflagrations, the highest acreage burned since 1936, and the greatest number of fires in 9 years.

Severe lightning storms in July and August started a record number of fires in the Northwest. These were followed by high winds and resulted in a complex of huge fires on the Okanogan-Wenatchee National Forests in Washington. California experienced the same drought into November. There man-caused fires fanned by 80 mph Santa Ana winds developed into one of the worst series of conflagrations ever experienced in southern California. In November the Bear Fire destroyed 55,000 acres of prime watershed on the San Bernardino National Forest in California.

Through November 30, 1970, 14,600 fires burned 552,800 acres of Forest Service protected area. Of these fires, 6,670 were man-caused. The burned acreage on Forest Service protected area was over three times greater than the previous five-year average. Man-caused fires increased 40 percent over the five-year average. The major increases were in the far West and Southeastern States.

Geographic Breakdown of Obligations--Fiscal Year 1970

Alabama .....	\$24,888	Minnesota .....	\$16,944	South Carolina .....	\$31,197
Alaska .....	24,235	Mississippi ...	91,714	South Dakota .....	174,457
Arizona .....	2,818,778	Missouri .....	117,233	Tennessee ....	148,080
Arkansas .....	312,923	Montana .....	2,222,426	Texas .....	55,932
California ...	9,922,899	Nebraska .....	20,016	Utah .....	320,074
Colorado .....	290,480	Nevada .....	162,568	Vermont .....	129
Florida .....	150,088	New Hampshire..	1,396	Virginia .....	86,779
Georgia .....	38,709	New Mexico ....	1,314,682	Washington ...	1,304,848
Idaho .....	3,019,770	North Carolina ..	158,053	West Virginia ..	17,439
Illinois .....	24,039	North Dakota ..	21	Wisconsin ....	10,363
Indiana .....	10,823	Ohio .....	14,465	Wyoming .....	863,723
Kentucky .....	87,004	Oklahoma .....	27,881	Loan from	
Louisiana ....	115,667	Oregon .....	3,341,936	trust fund ..	-1,000,000
Michigan .....	85,184	Pennsylvania ..	985	Total .....	26,428,828

The amounts for 1971 and 1972 have not been distributed by States. Locations of emergency firefighting funds cannot be forecast with any degree of accuracy.



INSECT AND DISEASE CONTROL

1970 .....	\$9,590,000
1971 .....	11,610,000
1972 .....	10,250,000
Decrease .....	-1,360,000

A net decrease of \$1,360,000 is proposed as follows:

- (1) An increase of \$140,000:
  - (a) To protect the environment on 100,000 acres of hardwood forests in the Northeastern and Central States from **depredation by defoliating** insects such as cankerworms, leaf rollers, and gypsy moths.
  - (b) To treat critically infested high-value conifer stands on the National Forests with Zectran to control spruce budworm outbreaks.
- (2) Decrease of \$1,500,000 for the non-recurring purchase of Zectran, a non-persistent carbamate insecticide to be used as a substitute for DDT to control spruce budworm. Purchase of this product in 1971 should meet control needs for a 2-3 year period.

Annual losses from forest insects and diseases are estimated to be about 40 percent of the current annual timber harvest. Losses from physiological disturbances other than insects and infectious diseases are also highly significant. These are losses caused by:

- (1) Adverse soil conditions.
- (2) Atmospheric pollution.
- (3) Climatic factors such as temperature and moisture.

Damages caused by these conditions can only be identified through careful examination and evaluation. Diagnosis of the cause and recommendations for elimination or control are prime responsibilities of the pest control scientist.

Damage from insects and diseases cannot be viewed or considered only on the basis of timber value. With today's emphasis on maintaining and improving the quality of the environment, the adverse effects of insect and disease outbreaks--such as the marring of the natural beauty of the countryside, impairing or eliminating the ideal habitat for fish and wildlife, increasing the hazard of forest fires, and protecting the cherished recreation sites that trees make possible--cannot be ignored. Timely action through insect suppression and disease prevention or control must be a major part of the program to protect these environmental values so basic to the American way of life.

Bark beetles are now the most destructive forest insect pests. They are responsible for about 90 percent of the timber losses triggered by insects. During fiscal year 1970, losses from insect attacks, reported by Oregon and Washington, amounted to about one-half billion board feet. Spruce beetle activity is on the increase in Alaska and in the Rockies from Canada to the Pacific Southwest. Mountain pine beetle outbreaks continue to deplete lodgepole and ponderosa pine stands in South Dakota, Wyoming, Northeastern Idaho, Colorado, and Utah. Vigorous control programs that have proven to be successful must be continued to prevent further tree mortality.

Douglas-fir beetle, the fir engravers, and the western pine beetle continue to be active. It is expected the infestation will expand as a result of the summer and



fall fires in the Pacific Northwest and California. Every attempt is being made to minimize losses from these beetles by close surveillance of the areas and prompt removal of brood trees in salvage logging operations. Where salvage is impractical, infested trees are cut and then burned or chemically treated.

In the South and Southeast, the southern pine beetle continues as the principle forest pest. Control projects to contain beetle activity and to minimize losses are necessary. Below freezing temperatures in the winter of 1969-70 over an extended period wiped out beetle populations in some localities and decimated them in others. It has been possible to reduce control operations in some areas as a result. Hurricane Camille provided ideal conditions for beetle development and spread into standing healthy trees. The affected area has been under very close surveillance since the hurricane. Outbreaks are being controlled on National Forest, State, and private lands.

Defoliating insects--caterpillars, loopers, tussock moths, sawflies, and many others--weaken or kill trees by eating the leaves and needles. Such defoliators are the most destructive forest insects of the hardwood forests and hardwood trees in recreation areas of the East. These leaf and needle eaters defoliated over 3 million acres in the summer of 1970. Repeated defoliations and resultant tree-killing is causing highly increased concern about tree losses from all segments of the population:

- (1) Timber owners.
- (2) Industry.
- (3) Park and recreational area users.
- (4) Community, urban, and city officials as well as private citizens.

The gypsy moth, a defoliator of both hardwoods and conifers, became increasingly troublesome in Connecticut, New York, New Jersey, and Pennsylvania during the summer of 1970. Some forest areas were so completely defoliated, that they gave the appearance of mid-winter in the middle of the summer. This forest pest, introduced over 100 years ago from Europe into the New England States, has now spread to western Pennsylvania and the Shenandoah Valley of Virginia. Since oaks are a favorite food of the gypsy moth there is much concern about the potential damage to the vast oak forests of the Appalachians.

The Federal Government entered the cooperative gypsy moth control effort in 1906. Control efforts have been largely regulatory and directed toward preventing spread of the insect into areas free of the pest and/or eradication of newly discovered infestations in areas previously classified as free of the insect. Little attention or Federal assistance has been directed to managing the gypsy moth populations in areas where the insect has become established.

It is now appropriate to place this pest in the same category as other forest insects. Responsibilities for cost-sharing with the States to control gypsy moth outbreaks will be assumed in the spring of 1971. Additional funds will be needed for the technical services related to detection, evaluation, and suppression work.

Previously, all Federal activities were administered through the Federal Plant Pest Act by Agricultural Research Service. In a recent reexamination of policies it was determined that the Forest Service under the Forest Pest Control Act of 1947, also has responsibilities in gypsy moth control. The Forest Service and the Agricultural Research Service are working together to develop guidelines to insure that the Forest Service's efforts to protect the forest resources and the Agricultural Research Service's regulatory efforts are coordinated to prevent duplication.





## Project (13)

Suppression of two major diseases--dwarfmistletoe and white pine blister rust--require continued effort. The dwarfmistletoes are parasitic plants that attack and kill many coniferous tree species in the West. Studies show that a high rate of return can be realized from control work when done in conjunction with thinning. Control of white pine blister rust continues in those stands providing the most favorable cost/benefit ratios. In the East these control efforts are expected to provide an additional 47 billion board feet of harvestable timber.

Technical service provided to National Forests, other Federal land managing agencies, States, private industry, and small forest owners is a major activity of forest pest control. This service involves:

- (1) Coordination.
- (2) Systematic aerial and ground detection.
- (3) Diagnosis.
- (4) Evaluation.
- (5) Control recommendations.
- (6) Training.
- (7) Demonstrations.

Pest control scientists help to protect the environment by carefully weighing and determining the adverse effects of unchecked pest outbreaks and those which might result from prescribed control treatment with the benefits to be derived.

Impact data for most forest insects and diseases are sketchy or lacking. Good data is essential to properly analyze and evaluate outbreaks and make suppression recommendations. Studies to develop standards and implement collection of impact data for forest pests of high economic importance are on the priority job list for 1972.

Another high priority job is the pilot testing of promising nonpersistent chemicals and biological agents to replace the more hazardous pesticides.

Pest outbreaks fluctuate greatly. The cost to check and contain outbreaks cannot be accurately predicted. Using past experience as a guide, along with the knowledge of developing situations, Federal fund needs for fiscal year 1972, as compared with 1970 and 1971, are as follows:

<u>Item</u>	<u>1970</u>	<u>1971</u> (in thousands)	<u>1972</u>
(1) Administration, detection, and evaluation .....	\$4,300	\$5,000	\$5,200
(2) Methods improvement .....	720	720	700
(3) Purchase Zectran .....	- -	1,500	- -
(4) Bark beetle control .....	2,686	2,420	2,060
(5) Defoliator control .....	245	380	670
(6) Other insect control .....	91	125	125
(7) Blister rust control .....	800	852	852
(8) Oak wilt control .....	68	68	68
(9) Dwarfmistletoe control .....	622	520	550
(10) Other disease control .....	58	25	25
Total .....	9,590	11,610	10,250



Examples of Recent Accomplishments

Maine spruce-fir forests protected. A cooperative project was carried out to control spruce budworm on 210,000 acres of spruce-fir forests in Northern Maine. An organophosphate insecticide (Accothion) was applied by aircraft in two separate applications approximately a week apart. The rate of application was 2 ounces per acre on each application.

Bark beetle control. Suppression of bark beetle outbreaks involved treatment of 381,000 trees on both National Forest and non-Federal lands. In addition to direct treatment, accessible areas supporting heavy beetle populations were salvaged-logged to remove infested trees.

Disease control. Oak wilt presuppression surveys were conducted on 34,358,770 acres in Pennsylvania, North Carolina, Virginia, and West Virginia. A total of 5,395 infected trees were found and treated to prevent spread of the disease. Blister rust control work was performed on 40,472 acres. Approximately 16,292 acres were sanitized to prevent spread of dwarfmistletoe on western conifers.

Cooperation with Fort Apache Indian Reservation. Southwestern Region pest control scientists surveyed an Engelmann spruce bark beetle outbreak on 6,272 acres in the Mt. Baldy section of the Reservation and made recommendations for a control program.

New policy for control of balsam woolly aphid in the Southern Appalachians. Under the new policy, spraying for the aphid is carried out only after an aphid infestation has been detected and only in the actual infested area. Formerly all of the trees in the "protection zone" were systematically treated at 3-year intervals. The new policy is made possible by an efficient system of detecting aphid infestations before they reach critical proportions.

Accordingly, only 12 acres, approximately 1,800 trees, were treated with a spray containing one-eighth percent lindane in fiscal year 1970 as opposed to 43,000 trees which were treated the previous year on a ranger district. The new policy has therefore reduced to a bare minimum the environmental impact of protecting the fraser fir, and also has resulted in considerable savings in protection costs.

Forest insect surveys modernized. A computer is now being used by entomologists in the South to analyze detection survey and biological evaluation data. Prompt and accurate data analysis provide land managers with reliable up-to-date information on insect conditions enabling them to do a better job in planning control projects. The ADP system being used is less costly than previous methods for analyzing data. Also, human resources are more fully utilized.

GEOGRAPHIC BREAKDOWN OF OBLIGATIONS  
Insect and Disease Control

	<u>1971</u> <u>estimate</u>	<u>1972</u> <u>estimate</u>
Alabama .....	\$130,000	\$50,000
Alaska .....	80,000	108,000
Arizona .....	140,000	160,000
Arkansas .....	50,000	60,000
California .....	1,200,000	1,200,000
Colorado .....	220,000	260,000
Connecticut .....	25,000	25,000
Delaware .....	3,000	3,000
District of Columbia .....	377,000	360,000
Florida .....	60,000	40,000
Georgia .....	70,000	60,000



	1971 <u>estimate</u>	1972 <u>estimate</u>
Hawaii .....	\$8,000	\$20,000
Idaho .....	2,600,000	1,790,000
Illinois .....	18,000	30,000
Indiana .....	9,000	18,000
Iowa .....	1,000	3,000
Kansas .....	- -	5,000
Kentucky .....	40,000	40,000
Louisiana .....	180,000	200,000
Maine .....	340,000	300,000
Maryland .....	16,000	25,000
Massachusetts .....	20,000	20,000
Michigan .....	200,000	200,000
Minnesota .....	320,000	115,000
Mississippi .....	280,000	60,000
Missouri .....	70,000	70,000
Montana .....	510,000	610,000
Nebraska .....	36,000	8,000
Nevada .....	80,000	30,000
New Hampshire .....	110,000	180,000
New Jersey .....	80,000	90,000
New Mexico .....	170,000	250,000
New York .....	269,000	300,000
North Carolina .....	250,000	250,000
Ohio .....	45,000	50,000
Oklahoma .....	5,000	7,000
Oregon .....	1,090,000	1,090,000
Pennsylvania .....	160,000	170,000
Rhode Island .....	3,000	3,000
South Carolina .....	110,000	80,000
South Dakota .....	120,000	200,000
Tennessee .....	40,000	50,000
Texas .....	190,000	190,000
Utah .....	277,000	130,000
Vermont .....	110,000	90,000
Virginia .....	180,000	170,000
Washington .....	270,000	270,000
West Virginia .....	190,000	180,000
Wisconsin .....	180,000	180,000
Wyoming .....	678,000	450,000
Total .....	11,610,000	10,250,000

Note: Estimates of project needs are forecast a year or more in advance of anticipated needs and are always subject to fluctuations. Adjustments are made between projects as necessary, depending on discovery of new outbreaks and expanded needs on approved projects.



ACQUISITION OF LAND, WEEKS ACT

1970 ..... \$1,300,000

In fiscal year 1970 and prior years, funds for acquisition of key inholdings within the National Forests and the National Forest purchase units were provided under this activity in the appropriation, Forest protection and utilization. Beginning in fiscal year 1971, these funds were appropriated under the fund, Construction and land acquisition.

The 1970 accomplishments are shown under the new Construction and land acquisition appropriation.









## GEOGRAPHIC BREAKDOWN OF OBLIGATIONS

Forest Research  
(includes Projects (15) through (28) on following pages)

<u>State</u>	<u>Headquarters or Project Location</u>	<u>FY 1971</u> <u>estimate</u>	<u>FY 1972</u> <u>estimate</u>	<u>Change</u>
		(in thousands)		
Alabama	Auburn .....	\$369	\$369	
	Tuskegee .....	30	30	
		<u>399</u>	<u>399</u>	
Alaska	College .....	317	317	
	Juneau .....	565	565	
		<u>882</u>	<u>882</u>	
Arizona	Flagstaff .....	720	612	-108
	Tempe .....	550	550	
	Tucson .....	248	248	
		<u>1,518</u>	<u>1,410</u>	<u>-108</u>
Arkansas	Fayetteville .....	244	244	
California	Arcata .....	336	336	
	Berkeley .....	2,157	2,147	-10
	Fresno .....	215	215	
	Redding .....	155	155	
	Riverside .....	1,224	1,224	
		<u>4,087</u>	<u>4,077</u>	<u>-10</u>
Colorado	Fort Collins .....	1,366	1,366	
Connecticut	Hamden .....	780	780	
District of Columbia	Washington .....	421	421	
Florida	Lehigh Acres .....	126	126	
	Marianna .....	132	132	
	Olustee .....	630	630	
		<u>888</u>	<u>888</u>	
Georgia	Athens .....	1,311	1,311	
	Macon .....	765	765	
		<u>2,076</u>	<u>2,076</u>	
Hawaii	Honolulu .....	164	164	
Idaho	Boise .....	315	315	
	Moscow .....	828	828	
		<u>1,143</u>	<u>1,143</u>	
Illinois	Carbondale .....	680	680	
Iowa	Ames .....	90	90	
Kentucky	Berea .....	362	362	
Louisiana	Alexandria .....	1,523	1,513	-10
	New Orleans .....	840	840	
		<u>2,363</u>	<u>2,353</u>	<u>-10</u>
Maine	Orono .....	162	162	
Maryland	Beltsville .....	378	378	
Massachusetts	Amherst .....	289	289	



**GEOGRAPHIC BREAKDOWN OF OBLIGATIONS**

Forest Research -- continued  
(includes Projects (15) through (28) on following pages)

<u>State</u>	<u>Headquarters or Project Location</u>	<u>FY 1971 estimate</u>	<u>FY 1972 estimate</u>	<u>Change</u>
		(in thousands)		
Michigan	East Lansing (including Ann Arbor)	\$209	\$209	
	Houghton .....	308	308	
	Marquette .....	229	229	
		<u>746</u>	<u>746</u>	
Minnesota	Duluth .....	275	275	
	Grand Rapids .....	310	310	
	St. Paul .....	<u>1,428</u>	<u>1,428</u>	
		<u>2,013</u>	<u>2,013</u>	
Mississippi	Gulfport .....	1,286	1,286	
	Oxford .....	290	290	
	State College .....	205	205	
	Stoneville .....	<u>661</u>	<u>661</u>	
		<u>2,442</u>	<u>2,442</u>	
Missouri	Columbia .....	<u>209</u>	<u>209</u>	
Montana	Bozeman .....	322	322	
	Missoula .....	<u>1,641</u>	<u>1,641</u>	
		<u>1,963</u>	<u>1,963</u>	
Nebraska	Lincoln .....	<u>138</u>	<u>138</u>	
New Hampshire	Durham .....	<u>572</u>	<u>572</u>	
New Mexico	Albuquerque .....	<u>234</u>	<u>234</u>	
New York	Syracuse .....	<u>128</u>	<u>128</u>	
North Carolina	Asheville .....	715	715	
	Franklin .....	233	233	
	Research Triangle (near Durham) ..	<u>800</u>	<u>800</u>	
		<u>1,748</u>	<u>1,748</u>	
North Dakota	Bottineau .....	<u>231</u>	<u>231</u>	
Ohio	Delaware (includes Columbus) ...	<u>1,287</u>	<u>1,287</u>	
Oregon	Bend .....	202	202	
	Corvallis .....	1,689	1,689	
	LaGrande .....	404	404	
	Portland .....	<u>1,183</u>	<u>1,183</u>	
		<u>3,478</u>	<u>3,478</u>	
Pennsylvania	Upper Darby .....	755	755	
	Warren .....	<u>146</u>	<u>146</u>	
		<u>901</u>	<u>901</u>	
Puerto Rico	Rio Piedras .....	<u>323</u>	<u>323</u>	
South Carolina	Charleston .....	<u>288</u>	<u>288</u>	
South Dakota	Rapid City .....	<u>298</u>	<u>298</u>	





## GEOGRAPHIC BREAKDOWN OF OBLIGATIONS

Forest Research -- continued  
 (includes Projects (15) through (28) on following pages)

<u>State</u>	<u>Headquarters or Project Location</u>	<u>FY 1971 estimate</u>	<u>FY 1972 estimate</u>	<u>Change</u>
		(in thousands)		
Tennessee	Sewanee .....	<u>\$163</u>	<u>\$163</u>	
Texas	Nacogdoches .....	<u>203</u>	<u>203</u>	
Utah	Logan .....	564	564	
	Ogden .....	641	641	
	Provo .....	<u>146</u>	<u>146</u>	
		1,351	1,351	
Vermont	Burlington .....	<u>520</u>	<u>520</u>	
Virginia	Blacksburg .....	<u>155</u>	<u>155</u>	
Washington	Olympia .....	351	351	
	Seattle .....	632	632	
	Wenatchee .....	<u>281</u>	<u>281</u>	
		1,264	1,264	
West Virginia	Morgantown .....	344	344	
	Parson .....	333	333	
	Princeton .....	<u>1,027</u>	<u>1,027</u>	
		1,704	1,704	
Wisconsin	LaCrosse .....	88	88	
	Madison .....	6,271	6,262	-9
	Rhineland .....	<u>623</u>	<u>623</u>	
		6,982	6,973	-9
Wyoming	Laramie .....	<u>172</u>	<u>172</u>	
Total	.....	47,805	47,668	-137



TIMBER MANAGEMENT RESEARCH

1970 .....	\$10,307,000
1971 .....	10,963,000
1972 .....	10,943,000
Decrease .....	-20,000

A decrease of \$20,000 in public relations activities.

Timber management research develops scientific knowledge of forest ecosystems with trees as a principal component, and develops methods for culture of trees and management of forests for production of timber and for modification and improvement of man's environment. This includes:

- (1) Development of cultural methods for timber and timber-related crops.
- (2) Techniques of timber measurement.
- (3) Techniques of forest management planning.
- (4) Techniques for environmental tree culture.
- (5) Research in forest genetics.

The core of this research is determining the proper culture for over a hundred different commercial timber species based on a thorough knowledge of their ecology and growth requirements. This research determines how the nation's timber supplies can be met on Federal, State, and private lands through measures such as brush control, forest establishment, protection from animals, stand culture, soil and site improvement, and the perpetuation of tree species valuable for timber or environmental purposes.

Timber management research also provides forest managers with reliable information on growth and yield of forests and on the influence of cultural practices on yield and quality of the stand.

The program includes research on methods of producing timber-related forest crops such as gum naval stores, maple sap, Christmas trees, and other income-producing natural products from forests.

The forest genetics research includes scientific study of variation and inheritance in trees, and development of techniques for producing strains or hybrids having superior growth rate, wood quality, resistance to insects, diseases, and other damaging factors, or special value for use in environmental improvement.

Examples of Recent Accomplishments

Tree barriers reduce noise level. During the past 30 years the average community sound level has risen an estimated 1 decibel per year--an 8-fold increase in total loudness. Preliminary results of research in cooperation with the University of Nebraska indicate that tree barriers can make a 50 percent reduction in apparent loudness. Living screens of trees and shrubs have a great potential to reduce the noise level and improve the appearance of the human environment.

Shelterwood system effective for maple and birch. Shelterwood cuttings are effective in regenerating sugar maple and yellow birch on well-drained northern hardwood sites and somewhat poorly drained hemlock-yellow birch sites in the Lake States. The proportion of yellow birch reproduction can be increased over 4 times by scarification and understory control in hemlock-birch stands; these treatments are somewhat less effective on northern hardwood sites. These findings add shelterwood to the array of useful regeneration treatments for northern forests.



Forest culture affects permafrost and site productivity. Successional trends in forest stands often produce, or reflect, important physical and biological changes throughout the ecosystem. A study of forest succession along the Chena River in Alaska shows that deeper, more rapid soil freezing and thawing are associated with early-successional stands of willow and balsam poplar than with later successional stages. In contrast, late-successional spruce stands retard thawing and result in a continuous frozen soil layer (permafrost) which reduces site productivity. This information suggests that appropriate stand management may help to retard development of permafrost and maintain site quality.

Better growth and yield data for forest managers. The ability to estimate present and future stand volumes is an essential ingredient for scientific forest management. Equations have been developed from long-term growth data for loblolly pine in Georgia that explain 77 to 93 percent of the variation in board-foot and cubic-foot yields, respectively, of managed stands of different density levels. The tables with their predictor variables of age, stand density, and site index will help forest managers decide when to harvest stands.

Photos from space improve efficiency of resource inventories. Existing space exploration programs provide an unusual opportunity for the development of forest resource information systems based on remote sensing. Using standard aerial photographs coupled with ground measurements, a four-stage sampling procedure was used to estimate timber volume on the Consummes Working Circle of the Eldorado National Forest with a sampling error of only 7.5 percent. In a further development, Apollo 9 imagery and 3 scales of aerial photographs were used in an expanded multi-stage sampling procedure to survey 12 million acres of land in the southeastern United States at a very low cost per acre. The best results were obtained in the Mississippi Valley area where an 80 percent reduction in the sampling error was attributed to the information obtained from the Apollo 9 photography.

Plant communities indicate productivity for lodgepole pine. In lodgepole pine areas in Central Oregon the understory plant community provided the best indication of productivity measured in terms of basal area, site index or volume growth. Productivity ratings based on plant community should be especially useful in areas where site quality cannot be directly determined from measurements on standing trees.

Compact soils require careful selection of tree species. Dense soils, occurring naturally or as a result of compaction, sometimes limit tree establishment and growth. A greenhouse study to determine which northwestern tree species are most tolerant of dense soil showed that the roots of lodgepole pine, Douglas-fir, red alder, and Pacific silver fir penetrated soils that were too dense for root growth of Sitka spruce, western hemlock, and western redcedar. Thus, the former species are better than the latter for reestablishing trees on logging roads, landings, and hardpan areas where compacted soil is a problem.

Introduced pines well adapted to Hawaii. Hawaii has no native conifers and must import more than 90 million board feet of softwoods per year. Experimental plantings on Maui have shown that after 9 years slash and loblolly pines have grown twice as fast as in the southern United States. Monterey pine is growing at a rate similar to that in plantings in New Zealand, Australia and South Africa, but Caribbean pine has poor form. Based on these early results a 30-year rotation is predicted but wood quality and potentially injurious agencies must be evaluated before these species can be recommended.

Intensive culture of sycamore found very promising. Sycamore responds well to intensive culture on good hardwood sites in the South. Current studies indicate that 2 to 5 times more yield per acre can be obtained from intensively managed plantations than from natural forests. Trees within a sycamore stand differ considerably in growth rate, stem form, and wood quality, so genetic improvement is very promising, particularly in combination with intensive culture.



Breeding produces hardy white spruce for the northern Lake States. White spruce has a high productive potential but successful plantation management in the northern Lake States is hindered by injury from late spring frosts. A study begun in 1958 has demonstrated that frost injury is associated with growth initiation of individual trees, and that breeding can produce strains that begin growth late in the spring. These strains also grow more rapidly, leading to substantial gains in overall growth.

15-year study defines seed collection zones for southern pines. A comprehensive study was started in 1951 by most of the forestry agencies of the South to determine how far from source seed the four major southern pines could be planted without adverse effects on plantation performance. All species showed important differences in survival, growth rate and other characteristics that were related to the geographic origin of the seed, and all were sensitive to being planted too far from the seed origin. Results of the study have been converted into maps showing seed collecting and planting zones within which each species can safely be moved. These maps will guide future programs in reforestation and genetics of southern pines.

Genetic gain from different tree improvement systems measured in longleaf pine. Selection for improved trees may be accomplished by selecting parents on the basis of their own performance, or by the performance of their offspring, or by a combination of both. Studies of longleaf pine indicate that selecting the best 25 percent of the parents on the basis of their own performance produced seedlings 12 percent taller than average. Selection of the best 25 percent of the parents based on performance of their offspring resulted in a 23 percent higher gain, or a total gain of 35 percent in one generation.





## INTENSIVE FOREST CULTURE



These five-year-old cottonwoods, up to 9 inches in diameter, resulted from research on tree improvement and intensive culture in the lower Mississippi Valley. These cottonwoods show the potential for quick-growing tree crops on productive soils. Similar research is needed on other promising tree species for the most productive forest lands in other regions of the country.

Figure 15



WATERSHED MANAGEMENT RESEARCH

1970 .....	\$4,425,000
1971 .....	4,732,000
1972 .....	4,624,000
Decrease .....	-108,000

A decrease of \$108,000 is proposed for the Beaver Creek Experimental Area, Arizona. These funds were used for maintaining the continuity of watershed research underway for several years, and to provide protection against future floods.

Forested watershed lands deliver approximately two-thirds of the water used each day in the United States. Watershed management research is concerned with developing methods of managing these forest and forest-related watersheds to improve water yield, protect unstable landscapes, rehabilitate degraded lands, and protect and improve the quality of this forest-water resource.

Research will continue on methods of managing vegetation to increase total water yield and to redistribute streamflow to provide more water for summer uses. Management programs resulting from this research could possibly increase yields of usable water in the Nation by nearly 5 percent of present consumption, or approximately 12 billion gallons per day.

More intensive management of forest resources to provide needed goods and services for the public requires additional research to protect unstable landscapes and to guard vital soil and water resources. In addition, almost one-third of the wild-land watersheds presently provide less than satisfactory protection of soil and water quality because of past misuse. Soil erosion has seriously impaired productivity of these lands and continuing research is required to learn how to rebuild and manage these sites.

Research is also needed to determine the role forest lands might play in protecting and improving water quality. Opportunities exist for recycling nutrients and other waste products to improve forest productivity and to provide a safe and economical means of waste disposal.

Specific research objectives in fiscal year 1972 will be:

- (1) Combat soil and water pollution by forestry-related activities in interior Alaska.
- (2) Increase or redistribute streamflow from high alpine snowfields and timbered watersheds in the Rocky Mountains, California, and Pacific Northwest and from hardwood areas in New England and the southern Appalachians.
- (3) Develop methods of recycling nutrients and wastes on forest lands in the North Central States to increase forest productivity and to prevent water pollution.
- (4) Rebuild protection against erosion on severely depleted rangelands of Utah, Arizona, and New Mexico.
- (5) Improve and maintain habitat for anadromous fish in streams of Alaska, Washington, Oregon, California, and the interior reaches of the Columbia River.
- (6) Rehabilitate severely eroded watershed lands of the West and strip-mined areas of the Appalachian Mountains to curtail stream pollution and to restore a productive and pleasing environment.





- (7) Improve management of the water resource for wildlife and recreation, timber growth, and water quality purposes in the wetlands of the northern Lake States and the Southeast Coastal areas, and in shallow ground-water zones of the Southern Coastal Plains.

#### Examples of Recent Accomplishments

Careful timber harvesting does not damage Alaska salmon streams. The effect of timber harvesting on the fresh water environment of salmon is a primary concern of land resource managers in southeast Alaska. Forest Service scientists found that suspended sediment concentrations during the logging of two watersheds did not significantly increase when compared to a third unlogged watershed, and summer stream temperatures increased only 1° to 4°F. Logging apparently did not adversely affect the salmon spawning habitat, based upon the returns of pink and chum salmon to the study streams during and after logging.

Two grasses found suitable for erosion control in New Mexico. Extensive acreages of abandoned cropland and rangeland in the Southwest are eroding and in need of special measures to restore protective plant cover. A test of eight grass species showed that Russian wildrye and buffalograss were the only species to develop into vigorous, dense stands for soil stabilization. These two species should be considered for erosion control when seeding areas within the sagebrush type of west-central New Mexico.

Tree bark may improve water quality. The disposal of millions of tons of tree bark produced annually by the wood products industry in the Pacific Northwest is a major problem. A recent study of the properties of bark and its potential uses suggested that the addition of bark to a watershed soil could prevent the buildup of harmful nitrates which tend to accumulate in some soils during warm, moist weather. Bark could also be used for soil conditioning, drainage improvement, and in maintaining a protective organic cover on the soil surface. Such uses of bark could not only improve soil and watershed conditions but also alleviate air and water pollution associated with present methods of bark disposal.

Seeded and native vegetation reduce soil erosion on burned area. Accelerated runoff and soil erosion often occur after intense forest fires. Studies on a 4,500-acre burn in South Dakota showed that a 60 percent ground-cover density was the minimum necessary for soil stabilization, and this density could not have been reached in a reasonable time period without artificial seeding. The study points out the importance of immediate artificial reseeding of burned areas for early control of runoff and erosion.

Forest clearing has little effect on spring floods in New England. Floods often occur in New England when spring snowpacks melt rapidly. To explore the possibilities of influencing snowmelt runoff and possible flood flows, a small forested watershed was cleared in 1965. Runoff was advanced only 4 to 8 days, peak flows increased early in the season but decreased later, and total volume of runoff from snowmelt was not significantly changed. The results indicate that clearing as much as 25 percent of a hardwood forested area would not greatly affect volume of downstream flows during the snowmelt season.

New instrument developed for measuring snowmelt. A need has existed for an instrument to measure outflow from a melting snowpack to help hydrologists forecast spring peaks on snow-fed streams. A simple, inexpensive, accurate, snowmelt gage has been developed in northern Idaho to provide continuous readings of water volume flowing from the base of a snowpack. The data obtained are useful in river flood forecasting and in snow hydrology studies.





RANGE MANAGEMENT RESEARCH

1970 .....	\$1,452,000
1971 .....	1,497,000
1972 .....	1,497,000

It is proposed to continue this program at the 1971 level.

One billion acres of rangeland represent about one-half of the Nation's total land area. This complex natural system produces a wide variety of goods and services for man -- water, clean air, habitat for livestock and wildlife, recreation, open space, and other products. In some instances, two or more products of the range ecosystem can be produced at high levels with complete harmony. More often the uses or products are competitive.

Range research seeks to:

- (1) Quantify the magnitude of competition among products.
- (2) Develop management alternatives that increase the production of forage for livestock and wildlife.
- (3) Identify the effects of these alternatives on other products of the range.

These objectives are pursued through a program of basic and applied research, which is carried on under such diverse natural systems as the subtropics of Florida, the alpine tundra of Wyoming, and the Sonoran desert of Arizona.

Examples of Recent Accomplishments

Converting woodlands to grasslands pays in the Ozarks. Production of livestock forage on certain sites on the Ozark Highlands can be increased 40 to 100 times by a sequence of brush control, burning, fertilization, and seeding of native or introduced grasses -- depending upon site factors. These findings enable many Ozark residents who have marginal livestock operations to substantially increase their income.

Competition between burroweed and perennial grasses. Because of the different root systems and major growth periods, burroweed and perennial grasses are in only moderate competition for moisture on the arid ranges of Arizona. Burroweed has a deep tap-root system and grows most rapidly in early spring. The major perennial grasses have shallow, fibrous roots and produce most of their top-growth in July and August. Total forage production could be increased by replacing burroweed with a good deep-rooted forage species.

Taxonomy of sedges is clarified. Despite the fact that there are more species of sedges in the Rocky Mountain region than any other group of vascular plants, the ecology of sedges is poorly understood. This is due mainly to taxonomic complexity and lack of recent manuals dealing with the genus. Both problems were solved with an illustrated manual containing the latest nomenclature, notes on economic use, preferred habitats, and specific distribution.



WILDLIFE HABITAT RESEARCH

1970 .....	\$1,263,000
1971 .....	1,401,000
1972 .....	1,401,000

It is proposed to continue this program at the 1971 level.

Wildlife habitat research is directly concerned with the quality of most of the Nation's terrestrial environment in terms of wildlife and their enjoyment by man. The Nation's forest, range, and associated waters provide a home for millions of big-game animals and countless other wildlife including songbirds, small game, and waterfowl. These wildlife resources provide recreation, income and beauty for a broad spectrum of the Nation's population. Urban and rural residents alike generate mounting demands on both public and private land for increased wildlife resources. National Forests alone contain over 180 million acres of upland and marsh habitat. These forests are enhanced for wildlife species only if the delicate balances and subtle changes in the plant and animal communities are understood. Vanishing species pose special problems.

Knowledge to increase habitat quality is needed by local, State and Federal agencies, by landowner-manager groups varying from the small farm woodlot operation to extensive commercial and public properties. Wildlife resource values and social values of wildlife are rising sharply, and returns to private landowners through sale or lease of hunting privileges have become a substantial source of income. The wildlife habitat research program of the Forest Service involves active cooperation. Federal and State fish and game agencies and educational institutions help meet critical knowledge deficiencies. It seeks solutions to the most urgent problems in managing wildlife habitat of forests, rangelands, and associate water areas. It will develop critically needed interim practices while working toward long-range multiresource solutions.

Examples of Recent Accomplishments

Timber harvest cuts can be too small or too big. When forage production and use by deer were compared on blocks ranging in size from 1 to 50 acres in southern Appalachian forests, a 21-acre block appeared to be a desirable compromise. In smaller blocks, the good forage plants were quickly overused or eliminated because of overstory competition. In larger blocks, the vegetation quickly became dense and inaccessible to deer.

Snow depth influences mule deer distribution. Snow cover 18 inches deep essentially precludes use of range by mule deer. In two of three winters, over 90 percent of a winter range in Colorado was excluded from deer use because of snow. Forage was inadequate to prevent starvation regardless of the size of deer population experienced in 15 years of study.

How to improve deer habitat on Southwestern forests. Forest lands in Arizona and New Mexico can provide better habitat for deer if:

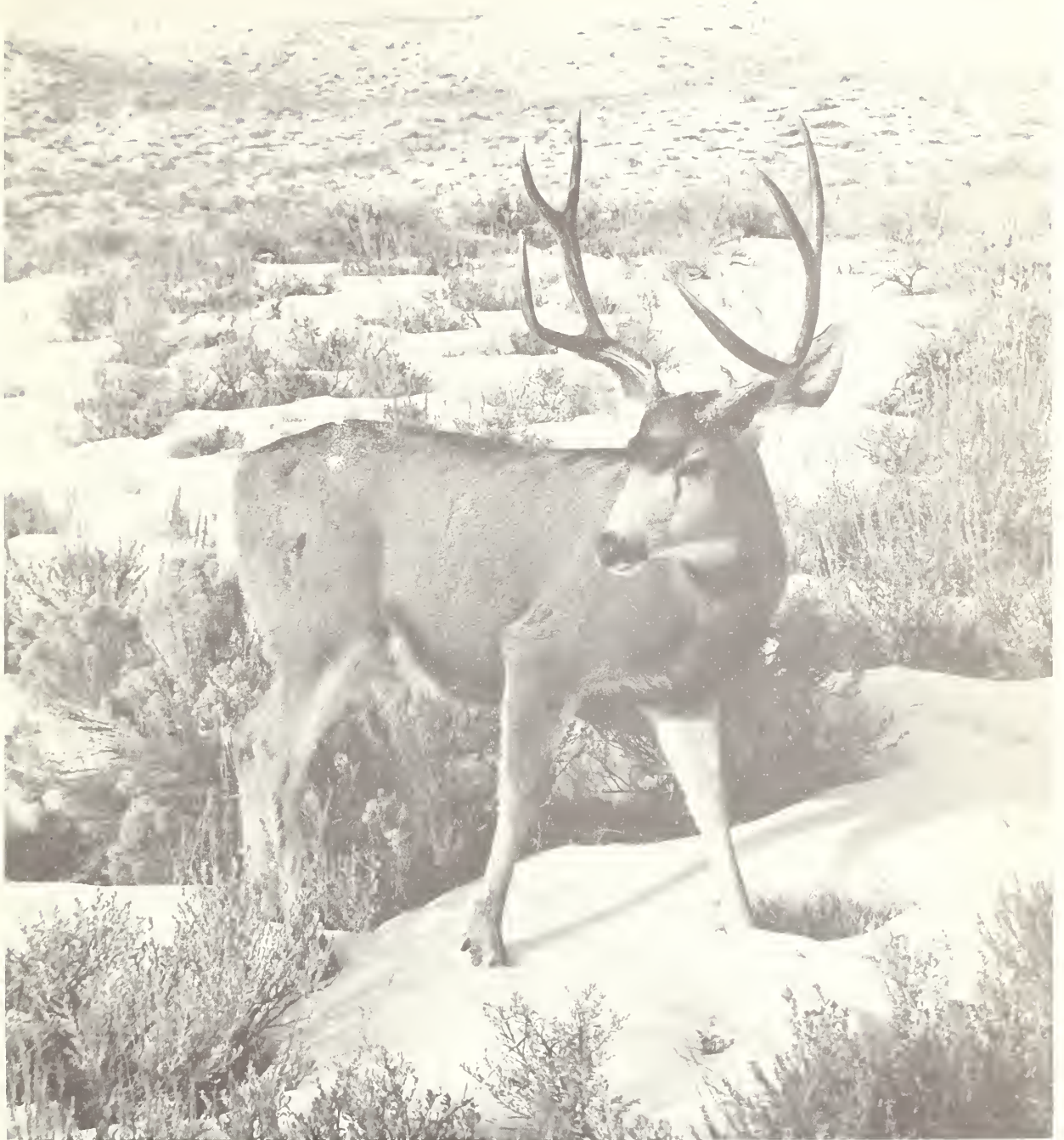
- (1) The natural forest openings and borders are maintained.
- (2) Immature stands of trees are thinned.
- (3) Slash disposal is minimized.
- (4) Forbs and browse are included with grasses when reseeding rangelands.
- (5) Forage is allocated between deer and cattle.



Strips cut in forests have higher breeding bird populations. Narrow clearcut areas in southern Appalachian forests have more birds during the breeding and late summer periods than uncut forest stands, but fewer birds during winter. The increase results from the attraction of "non-forest" species and the continued use of cut areas by "forest" species. Forest species compose about 40 percent of the bird population during the breeding period, increasing to about 60 percent during late summer.







Wildlife habitat research seeks to identify critical aspects of the environment which may limit wildlife resources. For example, recent findings in Colorado have shown snow over 18 inches deep essentially precludes use of range by mule deer. In two of three winters, over 90 percent of a winter range in Colorado was excluded from deer use because of snow. Forage was inadequate to prevent starvation regardless of the size of deer population experienced in 15 years of study.

Figure 18





FOREST RECREATION RESEARCH

1970 .....	\$919,000
1971 .....	1,019,000
1972 .....	1,019,000

It is proposed to continue this program at the 1971 level.

Forest recreation research will continue to provide information for land managers and environmental policy makers to guide sound use and development of forest and related resources for outdoor recreation. Emphasis will be upon:

- (1) Environmental quality.
- (2) Characterizing recreation use.
- (3) Determining present needs and use.
- (4) Estimating future needs.
- (5) Coordinating these needs with other requirements of forest resources.
- (6) Finding the place of outdoor recreation as a benefit to society.

Research will continue to:

- (1) Develop techniques for environmental analysis and planning in which physical, biological, esthetic and historical values are considered and coordinated.
- (2) Characterize and project the ever changing trends, patterns, users, and uses of outdoor recreation.
- (3) Better determine how and where forest recreation can be abundantly provided and be part of a balanced system of resource use.
- (4) Determine how the forests of America can help contribute to today's and tomorrow's social needs.

Examples of Recent Accomplishments

Accurate-use figures lead to better management. Reliable procedures have been developed for estimating mass and dispersed types of outdoor recreation use on large areas. A sampling system was perfected on a forest district that annually receives more than 200,000 visitor days of recreation use. Reliable estimates were obtained for 45 recreational activities. By better measures of how many visitors are doing what, when, where, and for how long, planning and management of recreation and other forest uses can be more efficient and more effective.

Skiing and the ski industry in the Great Lakes Region is a "mixed bag." Unlike the West, many Great Lakes ski areas are located close to cities and skiing is available to a large portion of the population almost daily -- and at night. Despite their close-by opportunities, Lake States skiers ski only half as many days per year as do Western skiers, and investment possibilities appear generally poor. Skier attendance increased 20 percent per year from 1960 to 1967, but this rate has not held. Capacity has increased and there is a threat of overcapacity. The average daily expenditure per skier is \$17, but the ski areas often received as little as half of the day-skier expenditures and only one-fourth of their weekend and vacation expenditures. Onsite and offsite expenditures by skiers throughout the five-State region totaled \$65 million during the 1968-1969 season.



Snowmobiling--a compatible companion to skiing. Snowmobile ownership in the Great Lakes Region will probably exceed the half-million mark early in 1971. This rapidly growing sport appears to complement rather than compete with skiing. Many of the ski area operators report that snowmobiling near or adjoining their ski development has increased skier attendance, and has a beneficial effect on food, beverage, and ski shop merchandise sales. Because of the compatibility of skiing and snowmobiling, some ski area operators are considering the development of winter sports' centers offering both.

Most Michigan vacation homeowners insist on a water setting. Over 55 percent are located on an inland lake, 24 percent are on one of the Great Lakes, and 10 percent are on a river or stream. Sixty-five percent of the homes are less than 200 miles from the owners' primary residence. Only 15 percent are more than 300 miles away. Nearly 50 percent of the owners make less than \$10,000. Only 10 percent are in the above-\$20,000 group. The lower income groups tend to locate along streams and small lakes. Those with higher incomes were more often found on a Great Lake frontage. Thirty percent of the heads of households were in the professional and clerical occupation classes; both tend to locate their vacation homes along Great Lakes; and both occupational categories are expected to increase more than the others by 1980. Another indication that vacation homesites along Michigan's Great Lakes will increase in popularity relative to other sites is that the proportion of households in all income groups above \$10,000 is expected to rise in the next few years.

Durability of potential recreation sites can be predicted by measurement of several easily measured variables, such as aspect, slope, clay and stones in surface soil layers, and end-of-season vegetation stocking. Trampled vegetation is vulnerable to heat. Vegetation survival was good on Northwest (coolest) aspects, and even better on clay soils with high rock content. The study showed considerable promise that equations to predict recreation site durability can be derived from aerial photo measurements alone.

Case study of five outdoor recreation enterprises in Ohio provides several profitable suggestions for active and would-be private-sector operators. Each operator reported he would have developed his enterprise much differently if he could do it again. One said he would begin with the most modern facilities available rather than try to get along with something merely adequate. Another wishes he had bought more land. The operator of a fishing enterprise said he would build a smaller lake to reduce clean-up costs. One operator said he would have developed more facilities for picnickers than for overnight guests--his profit per visitor would be greater. He also wishes he had given much more attention to facility location to better avoid traffic congestion. Two operators wished they had made more and earlier use of professional advertising agencies to increase attendance, and today all five operators are advertising in a variety of ways.

The operators are pleased with their several "right" decisions. All are very strict about the appearance of employees and facilities. They scrub picnic tables at the end of each day, and thoroughly clean toilets during and after each day. They have at least one neatly dressed person constantly policing the area for unsightly litter. They repaint facilities before opening for business each spring. None of the operators posted "do's" and "don't's." Each maintained only those regulations necessary for the visitors' enjoyment, convenience, and safety. The objective was to make each patron feel unrestricted while using the facilities provided.





FOREST FIRE AND ATMOSPHERIC SCIENCES RESEARCH

1970 .....	\$3,885,000
1971 .....	3,988,000
1972 .....	3,988,000

It is proposed to continue this program at the 1971 level.

The fire research program develops knowledge and technology to reduce forest fire costs and to protect the quality and productivity of American forests. This research program is the sole Federal forest fire research effort and is designed to aid all private, State and Federal agencies in protecting 1.2 billion acres of forest and watershed lands. It must focus on more than 125,000 wild fires that occur annually. The fire research program has aided in bringing about a substantial reduction in total forest fire losses. During the 15 years, 1951 through 1965, the average annual area burned was reduced from 10,733,044 acres during the first five years of the period to 4,217,062 in the last five years. Increasing risks and hazards in today's more intensive use of forest lands is making the forest fire control job more difficult. During the four years, 1966 through 1969, the average annual area burned increased to 5,038,513 acres and reached 6,689,081 acres in 1969. The devastating fires of 1970 in the Northwest and California add further evidence on the increasing severity of forest fire problems.

While forest fire losses are at unacceptable levels, there are opportunities to make substantial savings through full development of new technology for fire prevention and control. The fire research program has a high potential to reduce the timber supply impacts from fire loss of commercial timber now averaging 1,515,598 acres per year on protected forests and environmental quality degradation from annual burning of more than five million acres on all classes of lands. The current fire research program is focused on:

- (1) Fire prevention.
- (2) Fire hazard reduction.
- (3) Fire control systems.

Examples of Recent Accomplishments

Developments in weather modification provide good prospects for a new fire control tool. The recent developments in cloud modification techniques for the reduction of lightning severity in Rocky Mountain thunderstorms have resulted in the initiation of operational trials of weather modification techniques in forest fire prevention and control. During the past two summers, trials have been conducted in Alaska and the Pacific Northwest, employing the seeding of cumulus clouds over burning forest fires to slow the spread of the fire through precipitation enhancement or to prevent additional lightning fire ignitions. The results of this work will be used in the development of improved weather modification procedures for use in fire control. These developments have vast potential and great promise for the reduction of forest fire losses.

Continued advances made in fire remote sensing. During 1970, first operational tests were made of a new dual detector thermal infrared scanning system developed by the Northern Forest Fire Laboratory, Missoula, Montana. Mounted in a high-flying aircraft, this system was used for fire detection and mapping in Alaska, Washington, Idaho and Montana. In a single night patrol flight, it rapidly detected 59 new fires following a dry lightning storm. This airborne system aided fire-fighting operations by mapping scores of Northwest fires when smoke prevented visual reconnaissance. Also, a new airborne fire spotter was developed for use on low-flying aircraft and helicopters. This thermal sensor was tested on smoke-jumper and reconnaissance aircraft to locate previously detected fires and on





helicopters to locate hot spots. These new fire remote sensing systems have a high potential for reducing fire control costs and making firefighting operations safer and more efficient.

Mathematical models of fires aid fire control planning. Effective control of a rapidly spreading wildfire requires that fire control personnel know something about the future behavior of the fire, involving such factors as the rate of spread in a particular direction, and the intensity or rate of heat release of the fire. When these factors can be estimated or predicted accurately, a proper strategy for control of the fire can be selected and applied. Recent research at the Northern Forest Fire Laboratory has developed practical computer models for specifying:

- (1) Fire behavior from known input data describing the type of fuels available.
- (2) The terrain over which the fire is burning.
- (3) The past and prevailing weather conditions.

These models will permit firefighters to obtain correct estimates of future fire behavior under widely varying conditions resulting in more effective control procedures with a reduction of property damage and smaller risk of personnel injury or loss of life.

Fire weather handbook helps train firefighters. The new 220 page, color illustrated Agriculture Handbook No. 320 is unique--describing for the first time those long and short-term changes in behavior of the atmosphere and their causes which intimately determine the ways forest fires burn. To properly assess the firefighting job, any fire man must have a thorough understanding of these weather processes and probable changes during the time required for the control of fire. Sample copies of "Fire Weather" have been widely distributed, particularly in this country and Canada for which it was written. Its reception has been outstanding. The book will be a required text in forest schools that have a fire curriculum and will be used even more extensively in the many in-Service fire training schools by many agencies every year. The National Weather Service which cooperated in preparation of "Fire Weather" has placed copies in all of its forecast centers so that its fire-weather forecasts can be better adapted to local user agency needs.

Fuel breaks save lives and aid firefighting. Fuel breaks were conceived by fire research some time ago to serve two purposes:

- (1) To help confine disaster fires to smaller size.
- (2) To help prevent running brush fires from entering high value areas.

The idea started in southern California where conflagration type fires frequently occur under Santa Ana wind conditions common to that region, extending since then to other areas and situations. Research develops the principles for placement of fuel breaks on the land based on analysis of fuel, weather, and topographic conditions and develops methods for revegetating these cleared ways with species of lower volume or flammability. During the fall of 1970 a succession of Santa Ana wind situations resulted in many fires that burned more than 500,000 acres. Many instances occurred on these fires where research-designed fuel breaks more than paid their way.



Two instances are representative:

In November a hot chaparral fire burned rapidly downslope on a broad face of the San Gabriel mountains headed directly toward a series of residential communities along the base of the slope. Fortunately, a fuel break separated them from the heavy brush cover. Moments ahead of the fire, three specialists from the Riverside Forest Fire Laboratory arrived on the fuel break and immediately began to backfire the break. They had burned out two to three miles of line before being relieved because the speed of the fire had left the firefighting force on the other side of the mountain. The fire was stopped in its tracks.

During this same period, another hot burning chaparral fire threatened Cuyumaca State Park. This park contains the finest stand of timber in southern California and has been highly developed with recreational facilities but, here again, a fuel break had been constructed around vulnerable portions of the park, thus permitting backfiring action by a few men to stop the fire.

New firefighting chemicals are more efficient. Liquid chemical concentrates of diammonium phosphates are less costly and easier to use than other fire retardants in aerial attack of fires. Developed under cooperative programs by the Southern and Northern Forest Fire Laboratories and the chemical industry, these fire retardants can be readily mixed with water at airports and pumped into tanks in fire attack aircraft. More than 2 million gallons were dropped on the 1970 lightning fires in the State of Washington. Late in 1970, aerial tests were being expedited to determine drop patterns of the liquid concentrates and other chemicals so that improved guides will be available for selecting the best chemicals and delivery patterns for various types of fires.



FOREST INSECT RESEARCH

1970 .....	\$4,871,000
1971 .....	4,998,000
1972 .....	4,998,000

It is proposed to continue this program at the 1971 level.

Current research is strongly oriented to:

- (1) The ecological role of destructive insects in the forest and forest-related environments.
- (2) The development of nonpesticidal long-term means of maintaining critical pests at tolerable levels.
- (3) The development of concepts and methods of integrating pest control into forest resource planning and operations.

Special emphasis is being given to:

- (1) The insect- and host-produced attractants and stimulants that affect reproduction and survival.
- (2) Natural and synthetic repellent compounds that can be used for protecting individual trees and forest stands.
- (3) Insect diseases potentially useful for direct control. Research on termites and other insects destructive to wood in use and storage has been reorganized to expedite the investigation of new approaches to prevention and suppression of infestations.

Specific pest insects under study include:

- (1) Dendroctonus bark beetles that attack and kill western and southern conifers.
- (2) Spruce budworm in western forests.
- (3) Larch casebearer (now infesting 90 percent of western larch in the Northern Rocky Mountains and Northwest).
- (4) Gypay moth (which is increasing in abundance and spreading in the Northeast).
- (5) Forest tent caterpillar in the North Central States.
- (6) Trunk borers affecting high quality oaks in the Central States and Mid-South area.
- (7) Elm bark beetle (primary vector of Dutch elm disease).
- (8) Subterranean termites and death-watch beetles in the South.

Solution of these pest problems will insure significantly greater timber productivity, increased service life of wood in use, and enhancement of forest environments for people-use.





### Examples of Recent Accomplishments

Stabilized formulation of pyrethrins developed. A new means of extending the biological activity of pyrethrins from the present 1-2 hours or less to 48 hours has been developed at Berkeley, California. Pyrethrins are derived from chrysanthemums and are essentially nontoxic to man and other warmblooded animals. Used primarily for controlling mosquitoes, flies, and other pests of man, the pyrethrins in this new form can be applied to forest areas for controlling destructive insects with minimal adverse effects on nontarget organisms. Laboratory bioassays have shown the stabilized formulation to be many times more toxic than DDT to 17 forest insects. Limited field tests show it very promising for control of the western hemlock looper and spruce budworm. It is now covered by a Government patent.

Female elm bark beetles emit a sex lure. Tests by a team of Forest Service scientists at Delaware, Ohio, and chemists at the State University College of Forestry at Syracuse University have proved that virgin female elm bark beetles produce a chemical scent that is attractive to males and other females. Identification and synthesis of the compound is now in progress. This could provide an effective means of detecting and assessing beetle populations and, possibly, mass-trapping them in local areas to prevent spread and buildup of Dutch elm disease.

Pine sawfly virus ready for pilot-testing. Extensive laboratory and field studies of the nuclear polyhedrosis virus of the European pine sawfly, a serious pest of planted pines in the Northeast and North Central States, have provided basic information on the lethal dosage for field applications and methods of mass propagation and purification. Concurrent tests of acute oral and dermal toxicity, allergenicity, and skin and eye irritation using rats, rabbits, and guinea pigs have given this unique virus a clean bill of health. Scientists at the Forest Insect and Disease Laboratory, Hamden, Connecticut, have processed a sufficient quantity of the virus to treat 15,000 acres at a production cost amounting to less than 15 cents per acre.

Attractant-insecticide combination is lethal to termites. A new approach to termite control has been developed that targets on the very core of termite activity and survival, the nest or colony. The basic element is a powerful attractant compound that is the natural trail-laying substance of the subterranean termite and, interestingly, is produced in wood infected by the brown-rot fungus Lenzites trabea on which termites gorge. The chemistry of this attractant is known, and it can be synthesized. Small wood blocks infected with the fungus, or impregnated with the synthetic compound, plus Mirex, a slow-acting insecticide, are placed in and around structures in an infested area. Significant reductions in termite populations can be achieved. The method has a direct control effect, and it disrupts the balance of caste formation in the colony which further reduces chances for termite survival.

More information on the disease complex of the gypsy moth. Bacteria of the genera Streptococcus, Serratia, Aerobacter, and Proteus have been isolated from diseased gypsy moth larvae collected in the field. Laboratory assays have shown that these organisms are pathogenic and may play a significant role in the natural control of the gypsy moth.

Insects are primary cause of red pine cone loss. Overall insect-caused losses in the 2-year period of cone development in seed production areas in the Lake States account for an average 80 percent of the potential crop. The Zimmerman pine moth, red pine cone beetle, and jack-pine budworm cause major losses in the first year. Insects similarly are a primary cause of seed and cone destruction in the Southeast and other regions where production of seed is necessary for planting programs.





Foliage condition affects needle miner attack. Lodgepole pine foliage from different geographic areas varies significantly in susceptibility to attack by the lodgepole pine needle miner. High resistance is associated with the occurrence of certain volatile oils in the foliage and generally with trees growing on moist, poorly drained sites. This information provides a basis for classifying lodgepole pine stands as to the hazard of needle miner buildup and damage, and points to certain cultural practices that will increase the occurrence of resistant trees in a stand.



FOREST DISEASE RESEARCH

1970 .....	\$2,865,000
1971 .....	2,954,000
1972 .....	2,954,000

It is proposed to continue this program at the 1971 level.

The current program is directed toward ways of reducing the economic and ecological impact of diseases on the Nation's forests. Disease organisms and their host trees are studied in the search for biologically sound and economically feasible control methods. The program also supports research on air pollution injury to forest trees and on the deterioration of wood in use.

Included among the diseases currently under study are:

- (1) Dwarfmistletoes that significantly reduce growth in the western conifers.
- (2) Several root rots causing mortality and growth losses in forests across the Nation.
- (3) Rust fungi and canker diseases that reduce growth, disfigure stems, reduce product values, and kill trees.
- (4) Foliage diseases killing nursery seedlings and newly planted trees.
- (5) A number of air pollutants that cause injury to trees and a reduction in their qualities for esthetics and environmental amelioration in both forest and urban settings.

Examples of Recent Accomplishments

Aspen cankers in the test tube. Tissue cultures of quaking aspen are now being used to study the physiology of infection by the Hypoxylon canker fungus. Tests have shown that the fungus will grow on the host tissues in culture and that fungal penetration occurs some distance beneath the surface. This will provide an effective method for seeking weakness in the life cycle of the fungus that might give rise to successful control.

Rust races hinder pine breeding programs. Pathogenic races of the eastern gall rust have been found in the southeastern United States. The existence of these physiologic races of the rust makes it necessary for tree breeders to consider the possibility of new and different strains of rust developing and having the ability to attack otherwise improved pine selections.

Fertilization of pollutant-affected trees. A study on the effects of air pollution on fertilized potted eastern white pine clones revealed that fertilization reduced the extent of necrosis of needle tips in several sensitive clones. In the field experiment, other symptoms, such as banding and mottling, were not alleviated by the application of fertilizers. There is enough promise that additional studies are planned.

Moon dust and tree diseases. As part of the quarantine program to prevent contamination of the earth's surfaces with possible microorganisms in or associated with moon materials, a Forest Service pathologist was primarily responsible for the development of completely germ-free cabinetry and for procedures for their use. The techniques developed at the Manned Spacecraft Center for this program are rapidly being made available to research scientists throughout the world.



Nematodes for improved tree health. A species of fungus-eating nematode was found in ponderosa pine forests of New Mexico. In addition to feeding on some beneficial mycorrhizae-forming fungi, the nematode also feeds on fungi that cause root diseases of forest trees. In repeated trials, the nematode failed to attack ponderosa pine seedlings grown in the greenhouse.

Natural inhibition of decay organisms. Many naturally occurring phenolics inhibit growth of a root-rotting fungus that causes extensive mortality of western conifers. The concentration of inhibitors is low in Douglas-fir and high in associated red alder. These differences are believed to account for resistance to the fungus by the alders. Once isolated and identified, it should be possible to increase the inhibitory phenolic concentration in Douglas-fir through plant breeding techniques.

Southern brown-spot moves north. The brown-spot disease, for years the limiting factor in early growth and survival of longleaf pine in the South, has now become a problem in Wisconsin. It has reached epidemic levels in several Scotch pine Christmas tree plantations where the disease defoliates infected trees, making them unsalable. It is now recognized that Scotch pine varieties vary considerably in susceptibility and that the most favored short-needled varieties seem to be those that are most susceptible.

On the nature of pollution sensitivity. Changes in the amounts of total soluble carbohydrates and ascorbic acid have been related to the length of needles in eastern white pine. It is suggested that a relatively low carbohydrate content may be indicative of slow leaf tissue maturation, which in turn may be related to a prolonged sensitivity to air pollution. Nutrition studies and the collection of data on leaf development may yield further information on susceptibility of plants to specific pollutants.





FOREST PRODUCTS UTILIZATION RESEARCH

1970 .....	\$8,202,000
1971 .....	8,579,000
1972 .....	8,570,000
Decrease .....	-9,000

A decrease of \$9,000 in public relations activities.

Forest products utilization research is aimed at increasing timber supplies through more efficient use of wood and wood-based materials. Better wood utilization has the same effect as growing more trees, and offers opportunities to increase timber supplies in the short run. Much of the United States and world timber resource is now under-utilized, and the current program emphasizes better ways to use logging and manufacturing wastes, and ways of recycling discarded paper and wood products, both to broaden the supply base and to improve the environment. The overall utilization research program seeks to provide the knowledge and technology to:

- (1) Expand the use of low-grade and small trees, little-used species, bark and other logging and mill wastes, and waste paper into pulp, board and panel products, and a variety of other products.
- (2) Develop high-yield non-polluting pulping processes, and uses for pulp and papermaking wastes.
- (3) Develop engineering concepts and design criteria for the more efficient use of wood in structural applications.
- (4) Improve wood and timber quality characterization, and develop automated processing and grading systems for channeling each piece of wood into its highest use.
- (5) Prolong the service life of wood by preventing deterioration and destruction by fire, decay, and insects through improved techniques for preserving, treating, drying, gluing and finishing wood.
- (6) Characterize the properties of under-utilized tropical wood species in order to facilitate their expanded use, thereby relieving demand pressure on domestic species.

The conversion of wastes into paper, chemicals, and cattle feed, and the more efficient production and design of wood products, will:

- (1) Conserve the forest resource.
- (2) Increase the value return from forests to the National economy.
- (3) Aid in protein production.
- (4) Encourage the dispersal of populations into rural communities where forest-based industries predominate.
- (5) Improve the quality of the environment.

Examples of Recent Accomplishments

New short-log processing system. A short-log processing system coupled with a computer program for process control has been devised to provide a more efficient



and profitable method of obtaining short length lumber products and pulp chips from very low-grade hardwood logs. A mill design was developed and economic analyses were made to show how these techniques can be used to convert low-grade oak and hickory trees into pallet products. These would be suitable for pallet-pool or pallet exchange programs as well as for conventional use.

Particleboard from crushed hardwood. The Forest Products Laboratory at Madison, Wisconsin produced a unique particleboard from shredded oak provided by the Tennessee Valley Authority, which has developed a process for crushing low-quality hardwood logs and branches into strands. The large volume use visualized for the particleboard is as wall sheathing, although its decorative possibilities are not to be overlooked. Only half as much phenolic resin is required as is generally used in conventional particleboard. The crushing technique coupled with the practical wood products now developed could provide an outlet for some of the now abundant low-grade eastern hardwood timber.

Straighter studs from new drying system. A new technique was developed for drying green southern pine studs in one-fourth the time, while reducing warp by one-half. The studs are mechanically restrained in rigid clamps during the entire high temperature drying and steam conditioning process. Research is continuing on this promising procedure. Industrial application would ideally utilize a continuous, multi-deck, roll-feed dryer to replace the conventional compartment kilns.

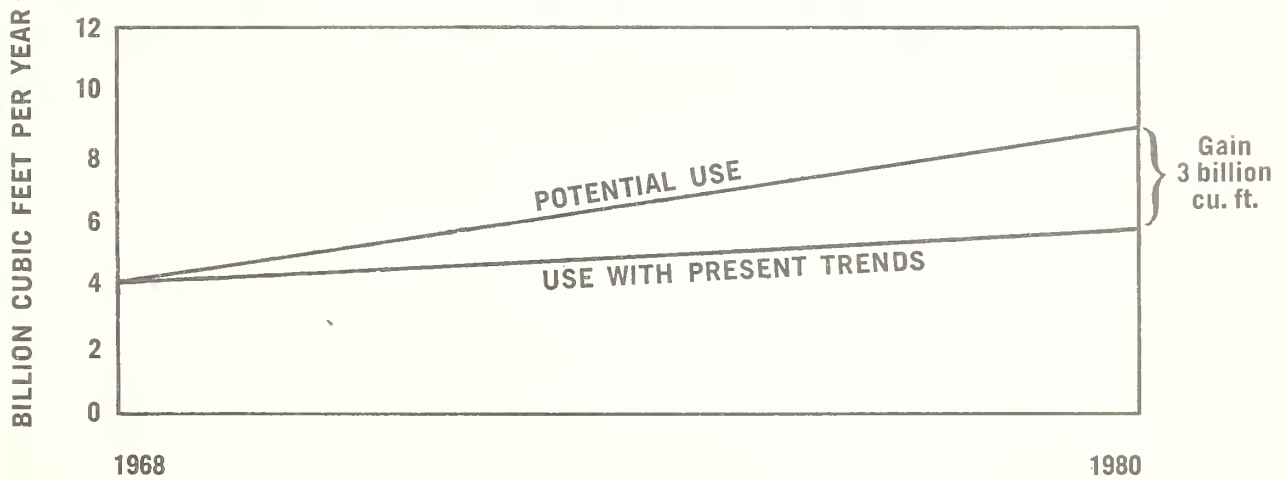
Laminated lumber from veneer. A new high-speed process is under development for converting low-grade hardwood logs in half an hour into glued laminated lumber suitable for large volume uses such as pallet decking boards. Two or more laminations of thick rotary peeled veneer are dried in a few minutes in a hot press. While still hot, veneer pieces are spread with glue and pressed into panels. Under commercial conditions, continuous panels would be made and cut into suitable sizes for specific uses.

Chemicals from waste liquors. Spent liquor from the acid sulfite pulping of hardwoods commonly contains 2 to 6 percent dissolved xylose sugar. Stream disposal of this liquor constitutes pollution of the water and a waste of potentially valuable raw material. Furfural was produced from the xylose in samples of waste sulfite pulping liquors and the economics calculated appear to be favorable for commercial application.

Tropical hardwoods investigated. Progress has been made toward facilitating expanded use of tropical hardwoods to augment domestic timber supplies. The vast wood collections from Yale University and Chicago Field Museum of Natural History were acquired. This quadruples the size of the Forest Service collection and makes it the most complete set of wood samples in existence. Commercially important wood properties of over 100 tropical species were reported at a recent international symposium.



## POTENTIAL GAINS IN TIMBERSUPPLY THROUGH IMPROVED UTILIZATION OF RESIDUES



Intensified research can increase by 1/3 the utilization of wood and fiber now lost as residue from logging, manufacturing and household consumption. At the same time, improved technology extends timber supplies; it also reduces environmental impacts.

Figure 23





FOREST ENGINEERING RESEARCH

1970 .....	\$925,000
1971 .....	1,130,000
1972 .....	1,130,000

It is proposed to continue this program at the 1971 level.

The overall engineering research program is aimed at solving difficult and critical timber harvesting and production problems through use of systems engineering techniques and interdisciplinary research programs. The research is keyed to:

- (1) Making available increased supplies of wood raw material.
- (2) Raising the productivity of woods labor while reducing unsafe practices.
- (3) Protecting water, recreation, and soil values in timber harvesting operations.

Engineering research contributes to both meeting the timber demand and protecting the environment. Some foreseeable benefits from new knowledge and technology are:

- (1) Capturing a billion board feet of annual allowable cut in the West not now harvestable because presently available harvesting and transport systems are unsuitable.
- (2) Reducing costs by 10 percent for regenerating intensively managed timberlands in the South.
- (3) Reducing mileage of timber haul roads in the West significantly through use of balloon and skyline logging systems -- an estimated \$16.5 million annual saving in the Douglas-fir subregion alone.
- (4) Salvaging up to 2.5 billion cubic feet of wood annually -- now left as uneconomic residue in the woods -- through use of bulk harvest and innovative transport systems.

Examples of Recent Accomplishments

Single span skylines. As an aid to assist manufacturers, forest managers and logging operators in planning, designing and pretensioning skylines, a series of five engineering papers was published. Noteworthy is the development for use of computers to handle the difficult mathematics required in the design of skylines which reduces the desk job at least five times, and thus, reduces design costs by more than half.

New skyline yarder developed. To improve logging technology and better protect other forest values, a new generation of skyline equipment was conceived. The new yarding system combines several new features and will make it possible to properly harvest vast acreages of timber on low yield areas of partial cuts and thinning with minimal damage to remaining stands. Also, it will greatly reduce logging residues and maintain esthetic values.

Removing bark from wood chips. Several million cords of wood presently left in the forest as logging residue can be recovered annually. This will extend timber supply 10 to 30 percent, but will require new techniques. Special methods are being developed to first chip this residue material in the forest and then





remove the bark from the wood chip. The pulp industry presently requires that 75 to 90 percent of the bark be removed. Several simple methods tried have achieved 50 to 60 percent removal. Extensive studies to improve efficiency of the methods are in progress.

Tree shakers for harvesting pine cones. Large areas of cutover land and understocked stands must be regenerated with superior trees to meet future timber needs. A fast system for collecting seed needed for this regeneration program was developed which employs mechanical tree shakers and pick-up collectors. A shaker can harvest more cones in 1 hour than an experienced climber can collect in a 7-day period. This is doubly important since it takes greater advantage of the 2-week period between cone maturity and natural seed cast.



FOREST SURVEY

1970 .....	\$2,730,000
1971 .....	3,266,000
1972 .....	3,266,000

It is proposed to continue this program at the 1971 level.

Commercial forest land in the United States, amounting to some 510 million acres, vary greatly in productivity, availability for industrial use, and opportunities for management intensification. Rapid changes result from timber growth, cutting, and losses to destructive agents. Use of forest lands for purposes other than growing timber also is increasing rapidly. Up-to-date inventories of forest land and timber resources consequently are essential to guide programs for production of timber and other forest products, while maintaining and improving the environmental quality of forest lands.

Information obtained includes the determination of current trends in the timber resource situation, the outlook for timber growth and supplies available for future harvests, prospective problems in timber and nontimber resource management, effects of alternative programs for meeting prospective timber demands, and opportunities for economic development based on timber resources.

Examples of Recent Accomplishments

Surveys conducted in 12 States. During the past year the equivalent of 45 million acres of commercial forest land was covered by new analyses of the timber situation. Surveys were conducted in Alaska, Arkansas, California, Florida, Georgia, Hawaii, Maine, Missouri, Oregon, (Western) South Dakota, Tennessee, and Wisconsin. Reports appraising the forest situation were issued for 5 States. Twelve additional reports on survey findings, including appraisals of the forest situation in portions of States, also were issued.

Fourth forest survey of South Carolina completed. Between 1958 and 1968 commercial forest land in South Carolina increased from 11.9 to 12.4 million acres, largely as a result of extensive tree planting efforts and reversion of idle agricultural land to forest. Volume of growing stock increased from 10.3 to 12.2 billion cubic feet, or 19 percent. Net growth of growing stock in 1968 exceeded removals by over 200 million cubic feet, or 48 percent.

70 percent of Ohio's commercial forest in hill country region. In 1967 the 28-county Ohio hill country region contained 4.4 million acres of commercial forest land, about 70 percent of the State's total. The commercial area was 33 percent above that in 1952. Volume of growing stock increased at about the same rate to 2.9 billion cubic feet and sawtimber to 9.8 billion board feet. Average net annual growth of growing stock exceeded 100 million cubic feet and sawtimber 350 million board feet. Timber removals were about 40 percent of the net annual growth.

Indiana's growing stock volume increased 25 percent in the last 17 years. Oaks, hickory, and hard maple make up 98 percent of the current volume of 3.5 billion cubic feet of growing stock. The commercial forest land area of 3.9 million acres in Indiana is slightly below the area reported in the prior survey. Timber removals in 1966 amounted to 64.9 million cubic feet, equivalent to about two-thirds of the net growth for that year.

Veneer log production in North shows divergent trends. Total veneer log production in the North in 1968 was 243.7 million board feet, up 1.6 percent from 1963. However, in the Central and Lake States regions production was down 8.8 and 9.3 percent respectively, while in the New England and Middle Atlantic regions production was up 1.8 and 21.3 percent respectively. Birch represented 28 percent of the total harvest.



Southern pulpwood production sets new record in 1968. Production of pulpwood in the South increased 10 percent in 1968 to a new high of 37 million cords. Gains were made in output of both roundwood and residues. Expansion of existing mills and construction of 7 new mills boosted daily capacity to 77,140 tons. One hundred pulp mills were operating in the South in 1968, with 4 more under construction.

Wood consumption in the Columbia-North Pacific Region projected to decline 11 percent by 2020. A decline in future timber harvests in the Pacific Northwest is expected to take place primarily in areas which have been major centers of forest industry. Most of the projected decline reflects reduction in log production from private lands. Because of reduced output and continued improvements in productivity total employment in the forest industries is expected to decline by 2020 to about two-thirds of the 1965 level. Total payrolls, on the other hand, are expected to increase.





FOREST PRODUCTS MARKETING RESEARCH

1970 .....	\$1,696,000
1971 .....	1,943,000
1972 .....	1,943,000

It is proposed to continue this program at the 1971 level.

Forest products marketing research provides information on ways of improving the use of the Nation's timber resources through more effective harvesting, processing, distribution, and consumer use of forest products. Studies of factors influencing use of wood and competing materials in construction, manufacturing, shipping, or other end uses indicate potential demands for timber products, and thus serve to guide forestry programs. Research on ways of reducing costs in timber harvesting and processing helps achieve more efficient use and wider markets for available timber resources. Evaluation of opportunities for expanding wood-based industries provides guidelines for local development of forest resources and improvement of the rural economy of the Nation.

Examples of Recent Accomplishments

Wood posts preferred in Central and Appalachian States. About 38.5 million fence posts were used annually between 1963 and 1966 on farms in Central and Appalachian States. Wood posts outnumbered metal by 2 to 1 in the Central Region and by more than 7 to 1 in the Appalachian Region. Total fence post use in the Central States seems to be declining due, in part, to increased use of treated wood posts which have a long service life.

Modern equipment increases sawmill efficiency. Output of lumber and net revenue at southern sawmills can be substantially increased by the addition of chipping headrigs that produce lumber and pulp chips simultaneously. Such equipment also makes possible utilization of much smaller timber than previously necessary for sawmill operation.

Wood construction practical for low-profile homes. Studies in Florida have proved the feasibility of using low-profile wood construction with a plenum floor system for single-family houses in warm humid areas of the South. This new system is efficient for both heating and cooling and can be used with a variety of construction techniques and house designs.

Wood foundation systems found feasible. A new factory fabricated wood foundation system for residential construction was found to be less expensive than conventional foundations and required much less construction time. Wood foundations also offer other advantages such as use of a single craft on a construction job, fewer delays because of inclement weather, and greater comfort in using living space below grade.

Guidelines issued for forestry cooperatives. New guidelines issued by the Department's Farmer Cooperative Service and the Forest Service provide information on the feasibility of, and methods for, organizing forestry cooperatives. Such enterprises can aid timber owners and operators in rural areas by providing more efficient harvesting, processing, and marketing of logs, pulpwood, and other forest products.

Wood use in manufacturing increasing. A nationwide survey of wood use by manufacturing industries showed that consumption of lumber, plywood, and other products increased 11 percent in the 5-year period 1960-65. Eighty-two percent of the total wood products used was lumber and 7 percent plywood. Particleboard accounted for nearly 10 percent of the total. Use of wood products for furniture and a wide range of other consumer and industrial products now accounts for more than 10 percent of all wood products consumed.



FOREST ECONOMICS RESEARCH

1970 .....	\$1,119,000
1971 .....	1,335,000
1972 .....	1,335,000

It is proposed to continue this program at the 1971 level.

Research in forest economics provides information on the costs and benefits of managing forest lands for timber and other uses, including water, recreation, range, and wildlife. This research includes:

- (1) Development of guidelines for integrating and balancing multiple uses of forest land to meet rapidly expanding demands for timber, water, recreation, and other forest goods and services, with full consideration of the impacts of land management programs on environmental quality.
- (2) Development of economic guides for efficient management of timber stands to achieve optimum investments in forest management activities and to provide guides for allocation of the hundreds of millions of dollars spent for forestry programs throughout the Nation.
- (3) Evaluation of forestry program alternatives to aid in identifying effective means of stimulating the millions of owners of private lands to adopt more productive forestry practices.

Examples of Recent Accomplishments

Marking guides for hardwoods. New marking guides, based on expected rates of value increase, aid foresters in improving selective cutting of northern and central hardwoods. Financial maturity information has been developed for northern red oak, white oak, chestnut oak, yellow-poplar, beech, and paper birch from recently collected tree growth and tree quality data. The new methods project increases in tree value for 10 years and determine rates of value increase for different tree classes.

Paper birch thinning evaluation. Financial returns from precommercial thinning in paper birch were evaluated by a new technique based on the probability that treatment will achieve specified yields. The analysis identified the best thinning practice for individual stands depending on site and age.

Planning multiple-use alternatives. A computerized system for analyzing multiple-use alternatives, has been used to improve management planning and help determine allowable cuts on the Six Rivers and Klamath National Forests in California. A large private owner has also used the model to develop long-range management plans on a newly acquired forest covering 100,000 acres.

Rapid rise in forestry costs. Costs of different forestry practices in the South in the period 1952-67 have increased from 200 to 700 percent, much more than general inflation or increases in forest products prices. Costs included controlled burning, seed bed preparation by bulldozing or disking, planting open land by hand and by machine, planting cutover land by hand and by machine, cutting to release young growth, poisoning undesirable trees, girdling undesirable trees, cruising, and marking trees for harvest.

Management on private forest ownerships analyzed. Actual timber harvesting since 1960 differed sharply from intentions stated in 1960 by owners of nearly 200 forested properties in Michigan's Upper Peninsula. Relatively high rates of timber cutting and forest management activities were found on large forest tracts



with high merchantable volumes, whether or not owners had timber harvesting objectives in 1960. Owners intentions seem to vary cyclically. The cycle begins with growth accumulation that results in the value of merchantable timber becoming financially significant. After timber sales, owners again seem indifferent to timber growing and indicate other reasons for ownership.

Forestry contributions to South's economy measured. Input-output analysis of the southern forest economy shows that primary processing industries produced output worth \$5.1 billion, while stumpage purchased cost \$0.3 billion. Secondary processing industries converted a portion of this output to \$3.4 billion of products. Collectively, forest related industries paid \$2.2 billion in wages to southerners.



RESEARCH CONSTRUCTION

1970 ..... \$931,000

In fiscal year 1970 and prior years, funds for construction of research laboratories were provided under this activity in the appropriation, Forest protection and utilization. Beginning in fiscal year 1971, these funds were appropriated under the new Construction and land acquisition appropriation.









## GEOGRAPHIC BREAKDOWN OF OBLIGATIONS

State and Private Forestry Cooperation  
(includes Projects (29) through (32) on following pages)

	1971 estimate	1972 estimate	Change
Alabama .....	\$688,900	\$688,900	
Alaska .....	292,500	292,500	
Arizona .....	67,400	67,400	
Arkansas .....	636,200	636,200	
California .....	1,379,400	1,379,400	
Colorado .....	274,500	274,500	
Connecticut .....	178,200	178,200	
Delaware .....	72,700	72,700	
District of Columbia .....	899,700	885,700	-14,000
Florida .....	930,400	930,400	
Georgia .....	976,000	976,000	
Hawaii .....	126,100	126,100	
Idaho .....	450,800	450,800	
Illinois .....	217,500	217,500	
Indiana .....	190,100	190,100	
Iowa .....	144,700	144,700	
Kansas .....	244,200	244,200	
Kentucky .....	561,900	561,900	
Louisiana .....	750,700	750,700	
Maine .....	604,400	604,400	
Maryland .....	330,600	330,600	
Massachusetts .....	289,700	289,700	
Michigan .....	848,500	848,500	
Minnesota .....	498,500	498,500	
Mississippi .....	830,900	830,900	
Missouri .....	635,100	635,100	
Montana .....	308,500	308,500	
Nebraska .....	192,400	192,400	
Nevada .....	280,800	280,800	
New Hampshire .....	208,200	208,200	
New Jersey .....	314,800	314,800	
New Mexico .....	181,800	181,800	
New York .....	684,800	684,800	
North Carolina .....	903,400	903,400	
North Dakota .....	83,900	83,900	
Ohio .....	340,800	340,800	
Oklahoma .....	306,200	306,200	
Oregon .....	799,100	799,100	
Pennsylvania .....	711,300	711,300	
Puerto Rico .....	90,700	90,700	
Rhode Island .....	116,200	116,200	
South Carolina .....	702,800	702,800	
South Dakota .....	190,800	190,800	
Tennessee .....	674,500	674,500	
Texas .....	543,600	543,600	
Utah .....	213,500	213,500	
Vermont .....	193,600	193,600	
Virginia .....	814,700	814,700	
Washington .....	774,400	774,400	
West Virginia .....	332,300	332,300	
Wisconsin .....	819,700	819,700	
Wyoming .....	126,600	126,600	
Virgin Islands .....	52,000	52,000	
Total .....	<u>24,081,000</u>	<u>24,067,000</u>	<u>-14,000</u>



COOPERATION IN FOREST FIRE CONTROL

1970 .....	\$16,440,000
1971 .....	16,505,000
1972 .....	16,494,000
Decrease .....	-11,000

A decrease of \$11,000 in public relations activities.

The Cooperative Forest Fire Control program provides for Federal cooperation in the form of technical and financial assistance to help State and private interests improve the level of fire control on their forest and watershed lands. All 50 States participate and provide protection to nearly 512 million acres of forest and watershed land. In providing this protection the State forestry organizations employ thousands of people mainly from rural America. The income from this source is very important to these employees, since many of them are from low income families and opportunities for other jobs are often limited.

Wildfire has once again caused millions of dollars in damage. Wildfire is unpredictable in its potential for destruction of life and property. It can spread rapidly and is no respecter of property boundaries. Weather patterns determine which part of the country will be struck next. Small fires not quickly detected and suppressed can destroy timber resources, rangelands and recreation areas, rural homesteads and other farm structures. Large wildfires add to the pollution of our air. Ashes and debris kill the aquatic life in streams and lakes. Critical watersheds will be destroyed, stream channels filled with mud and debris, bridges and roads washed out in the aftermath of wildfire. (See Figure 29-1.) For years the esthetics of the rural forested environment is destroyed.

Protection from fire is fundamental to the development and use of all forest resources. Additional investments in these areas would not be a prudent venture without considering the adequacy of protection. Fires left unchallenged increase the difficulty and cost of control and the amount of damages. As demands for the multiple forest resources increase, the pressures to protect and maintain them against the destructive forces of wildfire also increase. Crowd weary and pollution conscious people are building homes and communities in areas considered remote only a few years ago. With increasing population, city living is advancing into the hinterland at a pace faster than fire organizations can provide adequate protection. This urban-rural interface contributes to the huge losses of valuable property, as well as injury and death of people. This is where the greatest effort must be made to control the increased potential for disastrous wildfires.

More intensive fire prevention and control result in smaller burned area and losses though at a higher cost. (See Figure 29-2.) If private timberland is to produce the increased timber products needed for the economic growth of the Nation, wildfire must be controlled. Productive, unburned forests mean increased income for dependent landowners and operators, better living conditions for rural residents and stronger local communities.

Large fires (over 300 acres) are a very difficult problem. They represent only a small fraction of the number of fires yet burn large acreages (see Figure 29-2). Studies which will lead to the reduction of the number of large fires are currently being carried on cooperatively by fire organizations. Fast initial attack forces are being trained and dispersed at strategic locations to hit the fires while still small. Studies of climatic factors which lead to disaster fires are being undertaken to better plan prevention efforts. Management of fuels through prescribed fire and other modification measures is receiving increased attention and shows promise in reducing the number of large damaging fires.

The incendiary fire problem especially in the South and debris fires in the North are being given special attention through increased law enforcement and mass fire prevention education efforts. The increased incidence of railroad fires has





resulted in strengthened law enforcement, more research into better locomotive fuels and equipment and better right-of-way maintenance. Fire organizations are coordinating their efforts to reduce wild fires caused by railroad operations.

Funds are distributed to States by use of a complex formula. The formula was devised so it could be applied uniformly to all States. It recognizes the two factors most directly related to fire control:

(1) Extent of the protection job.

(2) State and local performance as represented by expenditures.

At the present time, each of these factors is given equal weight. The half based upon need is termed the "regular allotment" and is determined by a periodic fire protection analysis. The most recent analysis was made in 1965. The half based upon expenditures uses the average of the most current three-year State and private expenditures and is termed the "extra allotment." These two parts added together become the Federal allotment to each State. The total allotment is thus reduced under a sliding scale to bring total payments to funds available.

The table following this section shows proposed financing in fiscal year 1972 compared with fiscal years 1970 and 1971.

#### Examples of Recent Accomplishments

Prevention. California has expanded its pilot fire prevention education program known as "Operation Headstart." It is an early elementary school level program which was initiated in five counties. Research is being conducted in giving prevention instructions by closed circuit or educational television. Florida has produced two new fire prevention training films and the Northeastern State foresters another. Georgia's metropolitan foresters assisted with weekly five-minute colored television conversation programs. Kentucky has a special project in cooperation with the beautification section of the Conservation Department to eliminate the many unsightly fire-causing dumps. The special contactor program in Louisiana is continuing and promises some success in reducing incendiary fires. South Dakota also used a contactor program in high debris fire occurrence areas.

Aircraft use. Additional emphasis is being given to replacement of lookouts by aircraft for use in detection of fires. Indiana, Maine, Oregon, Washington, Pennsylvania, Hawaii, Michigan, California and Connecticut are some of the States either currently using aircraft or planning to do so. The use of helicopters both to water bomb and carry "hot-shot" crews is increasing. Many States have purchased helibuckets for use of water bombing with helicopters. State owned or contract helicopters can be adapted for use. Military aircraft are also used when possible.

Training. Kansas has given their eight-hour firemanship training course to 1300 firemen and advanced simulator training to 700 firemen. Nebraska has conducted fire training for 112 rural fire departments. California has trained two new helitak crews and added them to their first attack forces. New Jersey conducts training in protective burning which is done cooperatively on private lands.



## COOPERATIVE FOREST FIRE CONTROL

	State and Private Funds Expended FY 1970	Federal Allotments FY 1970	Federal Allotments FY 1971 (estimate)	Federal Allotments FY 1972 (estimate) <sup>1/</sup>
Alabama .....	\$1,921,434	\$491,693	\$472,036	\$472,036
Alaska .....	2,157,108	168,331	159,799	159,799
Arizona .....	56,119	54,740	53,070	53,070
Arkansas .....	1,493,947	489,173	467,460	467,460
California .....	28,249,420	1,153,860	1,118,648	1,118,648
Colorado .....	702,247	132,152	140,629	140,629
Connecticut .....	303,825	125,868	122,030	122,030
Delaware .....	16,181	14,370	27,730	27,730
Florida .....	6,362,131	649,258	625,568	625,568
Georgia .....	6,219,258	682,862	662,026	662,026
Hawaii .....	161,272	62,493	56,712	56,712
Idaho .....	862,941*	260,375	313,718	313,718
Illinois .....	391,572	110,700	108,952	108,952
Indiana .....	213,580	88,680	85,972	85,972
Iowa .....	70,477	64,474	62,021	62,021
Kansas .....	551,647	178,689	188,559	188,559
Kentucky .....	1,327,729	336,751	344,012	344,012
Louisiana .....	2,814,718	544,186	544,372	544,372
Maine .....	1,524,909*	455,224	441,332	441,332
Maryland .....	956,891	193,619	216,895	216,895
Massachusetts .....	497,388*	225,129	218,259	218,259
Michigan .....	2,625,374	575,703	556,196	556,196
Minnesota .....	612,570	368,172	356,938	356,938
Mississippi .....	2,320,469	545,309	528,667	528,667
Missouri .....	1,620,016	414,283	422,211	422,211
Montana .....	555,998	191,076	178,258	178,258
Nebraska .....	512,074	136,706	146,980	146,980
Nevada .....	510,241	146,310	169,930	169,930
New Hampshire .....	265,944	121,524	117,817	117,817
New Jersey .....	816,347	209,691	230,285	230,285
New Mexico .....	120,740	82,415	77,962	77,962
New York .....	1,815,455	438,656	442,061	442,061
North Carolina .....	3,536,113	576,121	564,763	564,763
North Dakota .....	13,964	14,000	23,393	23,393
Ohio .....	735,554	172,823	184,791	184,791
Oklahoma .....	451,032	205,768	205,918	205,918
Oregon .....	3,434,769	590,955	578,958	578,958
Pennsylvania .....	2,052,730	421,848	408,974	408,974
Rhode Island .....	183,003	59,803	67,090	67,090
South Carolina .....	2,675,645	482,662	498,143	498,143
South Dakota .....	166,273*	60,648	70,842	70,842
Tennessee .....	2,981,861	511,313	511,472	511,472
Texas .....	1,428,453	395,168	383,112	383,112
Utah .....	356,000	107,229	122,373	122,373
Vermont .....	76,833	70,853	68,694	68,694
Virginia .....	1,871,690	475,453	474,669	474,669
Washington .....	4,454,317	606,705	585,285	585,285
West Virginia .....	664,150	216,701	210,086	210,086
Wisconsin .....	2,649,179	502,146	506,829	506,829
Wyoming .....	186,969	78,104	94,003	94,003
Administration, inspection, prevention and special services - -		1,179,228	1,288,500	1,277,500
Totals .....	96,548,557	16,440,000	16,505,000	16,494,000

\*Fiscal year 1969 expenditures--the latest available.

<sup>1/</sup> While the amount available to a State may, if the allotment is small, exceed previously computed expenditures by that State, the actual payment to a State never exceeds State and private funds expended by or under the control of State.



## DISASTER FIRE



**The Going Fire**



**The Aftermath**

Figure 29—1





## COMPARISON OF EXPENDITURES FOR PROTECTION TO FIRE LOSS INDEX

	CENTS/ACRE ACTUAL 1967	FIRE LOSS INDEX* ACTUAL 1967
KENTUCKY	10.2	.28
OHIO	11.7	.06
PENNSYLVANIA	11.7	.03
VIRGINIA	14.0	.09
WEST VIRGINIA	5.7	.39

\* Fire Loss Index is the percentage of area burned to total area protected

## FIRES AND ACRES BURNED STATE AND PRIVATE PROTECTED LANDS C. Y. 1963-1969 AVERAGES

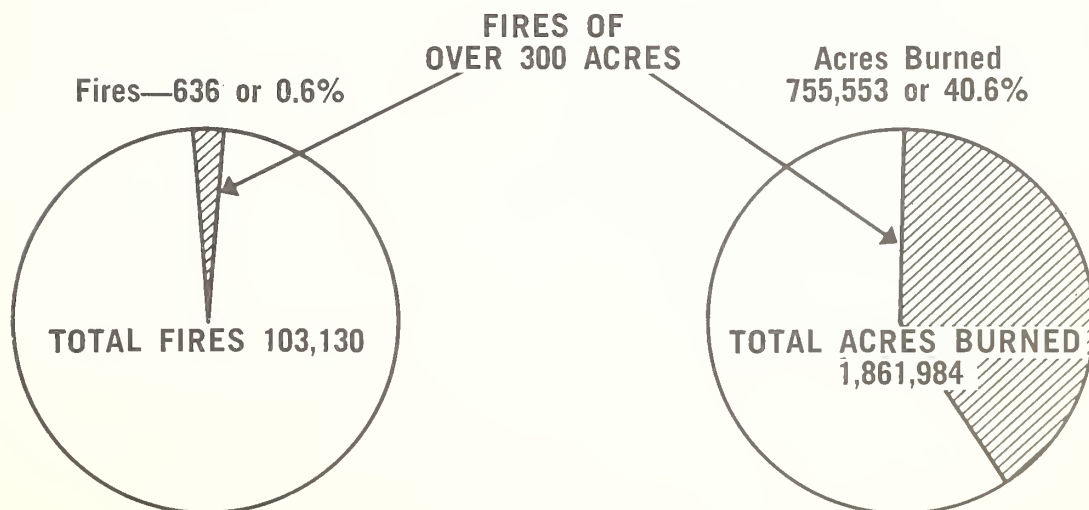


Figure 29-2





COOPERATION IN FOREST TREE PLANTING

1970 .....	\$313,000
1971 .....	319,000
1972 .....	319,000

It is proposed to continue this program at the 1971 level.

This program provides financial and technical assistance to cooperating States in the production, acquisition, and distribution of tree seed and planting stock for forest and wildbarrier plantings on non-Federal lands. Seed and trees thus furnished at modest cost form the backbone of current public forestation efforts which contribute to increased timber production and the enhancement of environmental values, including public recreation, wildlife habitat, and pollution abatement.

Program funds are used to assist the States in meeting the cost of seed extraction, seedling production, nursery maintenance, and other operations.

Beginning July 1, 1970, a new procedure was initiated for the allotment of funds under this program. The new system provides for a project approach with funds to be allocated on the basis of projects which will be designed to stimulate more efficient nursery operations. Projects proposed to date range from new irrigation systems to the production of "tubed" or specially packaged seedlings.

The number of trees shipped to landowners during each of the past four fiscal years, in comparison with all forest and shelterbelt trees produced by public and private nurseries, is as follows:

<u>Year</u>	<u>Federal-State Coop. Program</u>	<u>Other State Distribution</u>	<u>Total Output All Nurseries*</u>
1966 .....	521,440,000	50,530,000	819,640,000
1967 .....	572,087,000	30,307,000	922,247,000
1968 .....	544,420,000	29,646,000	888,985,000
1969 .....	523,986,000	30,037,000	813,814,000

\*Does not include production from commercial nurseries.

Examples of Recent Accomplishments

Production of improved genetic quality seedlings. Improved genetic quality forest tree seed is becoming available for seedling production at a rapidly increasing rate. Georgia, for example, produced over 24 million improved genetic quality seedlings during the 1969-70 season. Custom-growing of seed orchard seedling stock at the other Southern nurseries amounted to over 45 million seedlings.

Development of seedling harvester. The Forest Service Equipment Development Center recently completed the fabrication of an eight-row operational seedling harvester unit (see Figure 30). It has been nursery tested in the Pacific Northwest and will be demonstrated at a number of Southern, Northern, and North Central State forest tree nurseries this spring. The machine is capable of harvesting over 800,000 seedlings per day. Designed to work in sandy loams, this production figure could well exceed one million trees per day on the sandier soils. As much as 75 percent savings in tree lifting costs are expected with the use of this machinery. A national implement manufacturer is interested and ready to begin commercial production of the units.



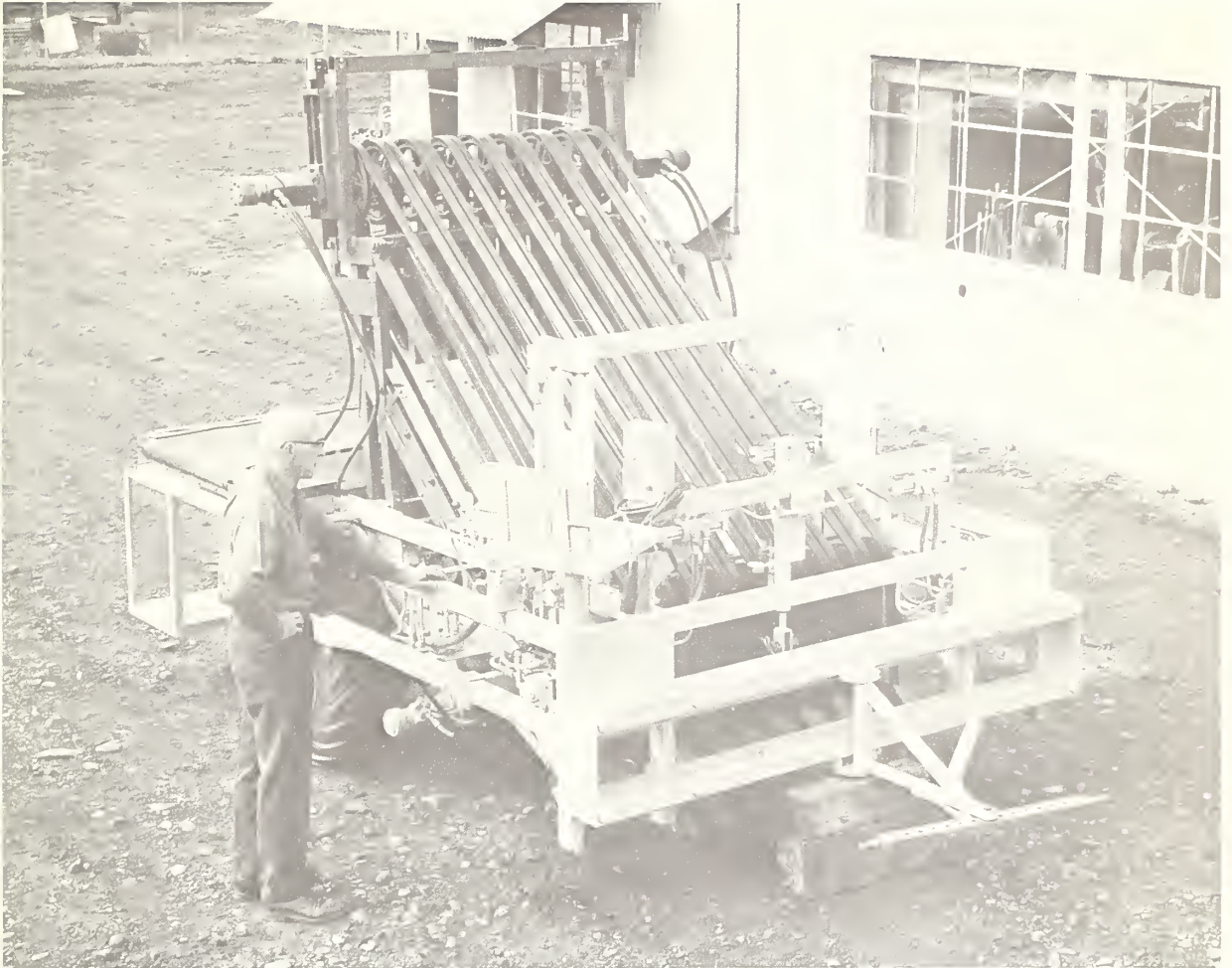
REGULAR ALLOTMENTS TO STATES

	<u>FY 1971</u>	<u>FY 1972</u>
Colorado .....	\$7,000	\$7,000
Idaho .....	12,000	12,000
Kansas .....	12,000	12,000
Montana .....	12,000	12,000
Nebraska .....	8,000	8,000
Nevada .....	12,000	12,000
New Mexico .....	12,000	12,000
North Dakota .....	12,000	12,000
Oklahoma .....	9,000	9,000
Rhode Island .....	- -	2,000
South Dakota .....	12,000	12,000
Utah .....	12,000	12,000
Wyoming .....	- -	4,000

SPECIAL PROJECT ALLOTMENTS TO STATES

	<u>FY 1971</u>	<u>FY 1972</u>
Alabama (Auburn Project--weed control) .....	\$23,041	\$26,000
California (extractory modifications) .....	12,000	- -
Maryland (irrigation system) .....	5,750	5,750
Michigan (seed) .....	3,000	- -
North Carolina (mulching) .....	6,000	- -
Ohio (tubeling) .....	4,000	4,000
Oregon (soil amendments) .....	5,000	- -
Pennsylvania (hydro-seeder) .....	7,500	1,500
Rhode Island (seedling production) .....	2,000	- -
Texas (shelterbelt) .....	5,000	5,000
Wyoming (seedling production) .....	4,000	- -





A view of the 8-row tree seedling harvester. The machine, pulled by a large tractor, has lifted over 800,000 trees per 8-hour day. On light sandy soils, production is expected to exceed one million trees/8-hour day. The unit weighs about 5,500 pounds. The harvester has a hydraulic system for regulating working parts.

Figure 30





COOPERATION IN FOREST MANAGEMENT AND PROCESSING

1970 .....	\$4,130,000
1971 .....	4,973,000
1972 .....	4,970,000
Decrease .....	-3,000

A decrease of \$3,000 in public relations activities.

The majority of the productive forest land in the United States, or 300 million acres, is in the hands of private, nonindustrial owners. Most of these owners lack the technical forestry skills required to manage their lands to provide their optimum share of the Nation's needs for forest products and services.

The program provides technical assistance to private landowners to increase the flow of timber and nontimber products and to improve environmental values. Today it must provide relatively greater emphasis on enhancement of the environment and nontimber benefits. Continued emphasis will be given to improving the supply situation of softwood lumber and plywood. Technical assistance is also given to loggers, sawmill, and other plant operators to improve logging, processing, and business methods. The work is carried out in cooperation with the State forestry agencies in 49 States, Puerto Rico, and the Virgin Islands. In fiscal year 1972, State service foresters will continue to work with local development groups for social and economic improvement.

Allotment of Federal funds to the States, Puerto Rico, and the Virgin Islands is made on the basis of a formula:

- (1) The formula applies to the total amount of Federal appropriation available for allotment; guarantees to each State an amount it can match up to \$30,000; guarantees that no State will receive less than 96.5 percent of its allotment for the preceding year within the limits of available Federal funds and the State's ability to match them.
- (2) Subject to the above guarantees and limitations, each State allotment is determined by a factor which is composed of:
  - (a) The State's fraction of the total number of woodland ownerships from 10 to 5,000 acres.
  - (b) The State's fraction of the total area of woodland in these ownerships.
  - (c) The weighted State's share of the total expenditures all States made in the preceding year in excess of Federal expenditures for that same year.



The following table shows proposed financing in fiscal year 1972 compared with fiscal years 1970 and 1971:

Cooperation in Forest Management and Processing

State	FY 1970	FY 1971 Estimate	FY 1972 Estimate
Alabama.....	\$65,200	\$120,600	\$120,600
Alaska .....	16,000	30,200	30,200
Arkansas .....	65,600	101,400	101,400
California .....	58,800	86,200	86,200
Colorado.....	41,800	56,500	56,500
Connecticut.....	35,100	35,300	35,300
Delaware.....	4,700	31,200	31,200
Florida .....	164,300	208,100	208,100
Georgia .....	152,300	228,600	228,600
Hawaii .....	17,000	30,800	30,800
Idaho .....	32,100	43,000	43,000
Illinois .....	67,200	65,900	65,900
Indiana .....	62,900	62,600	62,600
Iowa .....	45,200	44,600	44,600
Kansas .....	41,400	35,700	35,700
Kentucky .....	157,400	153,700	153,700
Louisiana .....	65,400	98,400	98,400
Maine .....	88,900	115,500	115,500
Maryland .....	74,300	78,100	78,100
Massachusetts .....	40,300	44,300	44,300
Michigan .....	125,800	138,800	138,800
Minnesota .....	88,400	97,600	97,600
Mississippi .....	87,900	127,000	127,000
Missouri .....	147,900	146,600	146,600
Montana .....	32,900	57,900	57,900
Nebraska .....	36,000	37,500	37,500
Nevada .....	29,500	30,800	30,800
New Hampshire .....	48,200	57,900	57,900
New Jersey .....	44,000	44,700	44,700
New Mexico .....	32,400	44,000	44,000
New York .....	154,200	161,900	161,900
North Carolina .....	205,000	250,800	250,800
North Dakota .....	30,600	30,500	30,500
Ohio .....	112,900	107,000	107,000
Oklahoma .....	34,000	41,300	41,300
Oregon .....	39,600	70,000	70,000
Pennsylvania .....	143,000	145,000	145,000
Puerto Rico .....	31,100	31,000	31,000
Rhode Island .....	15,000	30,600	30,600
South Carolina .....	106,000	133,700	133,700
South Dakota .....	37,000	33,800	33,800
Tennessee .....	84,900	93,900	93,900
Texas .....	55,700	85,800	85,800
Utah .....	30,300	31,700	31,700
Vermont .....	87,000	87,800	87,800
Virginia .....	170,300	195,600	195,600
Virgin Islands .....	12,238	30,000	30,000
Washington .....	48,700	76,500	76,500
West Virginia .....	79,500	82,200	82,200
Wisconsin .....	193,600	200,600	200,600
Wyoming .....	27,000	35,500	35,500
Total to States .....	3,666,538	4,411,700	4,411,700
Forest Service administration .....	463,462	561,300	558,300
Total appropriation .....	4,130,000	4,973,000	4,970,000



Major work accomplishments are shown in the following table:

Major Benefits	:	:	Fiscal	:	Fiscal
	:	Unit	Year	:	Year
	:		1970	:	1971
	:			:	(planned)
Woodland owners given woodland manage-	:			:	
ment assistance .....	:	Number	115,197	:	138,000
Area of woodland involved .....	:	Acres	6,945,456	:	8,360,000
Volume of timber products sold or	:			:	
harvested .....	:	MBF	1,230,529	:	1,480,000
Forest products operators given	:			:	
assistance .....	:	Number	13,620	:	16,400
Area of timber stand improvement ....	:	Acres	135,712	:	163,000
Area planted or seeded .....	:	Acres	150,442	:	180,000

Rural development. A joint effort by members of the LaCrosse County Rural Development Committee in Wisconsin, of which the local forester is a member, and local residents who "cared," have transformed heretofore unproductive land into a valuable asset. Under the guidance of the Wisconsin Department of Natural Resources, local residents applied the proper treatment measures and forest management principles on tax-delinquent land obtained by the county 25 years ago and planted trees. The area now known as the Hoeth Memorial Forest today provides income, employment, educational opportunities, recreation, wildlife and, most importantly, pride to the residents of this Wisconsin rural community.



GENERAL FORESTRY ASSISTANCE

1970 .....	\$2,027,000
1971 .....	2,284,000
1972 .....	2,284,000

It is proposed to continue this program at the 1971 level.

General forestry assistance funds are used to accomplish highly specialized forestry assistance not available through Forest Service cooperative programs. The program provides for professional assistance in such fields as:

- (1) Forest products utilization.
- (2) Rural community development.
- (3) Comprehensive planning.
- (4) Special studies.
- (5) Silviculture.
- (6) Continuous forest inventory.
- (7) Forest hydrology.
- (8) Advisory management services.
- (9) Industrial development.
- (10) Dissemination of forest research findings.

Assistance is provided to forest landowners, loggers, forest products processors, and others either directly or through State foresters, highly-skilled experts; or the interchange of employees of the Forest Service and State foresters or forestry schools.

Program funds are also used for innovative projects and studies in the solution of complex problems or testing of new approaches. These special projects are generally accomplished through cooperative agreements with State foresters. Examples of on-going projects include:

- (1) Priority of forestry services. An innovative approach to providing technical services to forest landowners on a priority basis (Indiana, West Virginia, and Pennsylvania).
- (2) Lake Tahoe Basin planning and development. Employment of forestry planning specialists by the State foresters of California and Nevada to work with the Lake Tahoe Regional Planning Compact and other agencies, organizations, and individuals to help guide and shape future development and prevent destruction of the environment.
- (3) Roundwood marketing. To develop needed information on volumes available and markets for small-size classes of timber from natural stands and plantations in Pennsylvania, Ohio, and Michigan.
- (4) Rural planning and development. Provides for a forestry planning specialist in Florida, Louisiana, Virginia, Montana, and New Jersey to maximize use of forest resources in all aspects of State and local planning and development.





- (5) Forestry work crews. Employment of technicians in Louisiana and Virginia to recruit and train forestry work crews and help schedule their work in tree planting and timber stand improvement.

Additional projects are planned to meet specific needs and opportunities for multi-purpose management to improve the Nation's forest lands.

The Forest Service and cooperating State foresters work closely with rural communities, local industry, and other agencies and organizations to abet social and economic progress. Funds are used to meet the assigned responsibilities of the Forest Service and to assist cooperating State foresters in rural development.

#### Examples of Recent Accomplishments

Skyline and balloon logging. In 1970, the Forest Service employed a skyline and balloon logging specialist to work with loggers and foresters in timber sales work in the mountainous Western Regions. Conventional high lead and tractor logging in this terrain can cause substantial and costly damage to the logging site. A minimum of soil disturbance results from skyline and balloon logging; fewer access roads with their erosion potential are needed; and less waste in the form of broken trees and logs are left to provide fuel for wildfires. The site is also left in better shape for planting a future timber crop (See Figure 32.)

Post peeling plant. A new industry in Holmes County, Mississippi, is a post-peeling plant. It is buying and peeling 2,000 pine posts daily. Ten men are employed in the woods and plant. Before this plant was built the owner received assistance from the project forester and utilization specialist of the Mississippi Forest Commission and an industry procurement specialist. These men supplied information on resources, wood procurement, plant layout, machinery location, and bark and shaving markets. This is the third post-peeling plant the State's utilization specialist has helped start. This new market for small pine will make forestry more profitable to the landowner as well as provide much needed additional income to the county.

Furniture factory. Dublin, Georgia, needed industry. The Georgia Forestry Commission, through its forest products utilization specialist, suggested a furniture plant and supplied supporting timber resource and other data to the president of the local Chamber of Commerce. As a result of the combined efforts of the State specialists, many other agencies, and development groups, and a \$1,625,000 loan, a modern air-conditioned furniture factory is now in operation. It employs 196 workers in the plant and another 36 in the woods.

Assistance to sawmill at Ely, Minnesota. Through the combined assistance of State and Federal forest products utilization personnel, a Minnesota timber concern in financial difficulty located good markets for its entire output of aspen and pine lumber. Efforts by these specialists, combined with the investment of new profits by the company, has resulted in the transformation of this company from one in danger of foreclosure to one whose future is promising. The results of such assistance have been substantial to the 30 people employed at this mill and to the producers of the 1.5 million board feet of logs used by the mill annually.





This balloon used in logging in mountainous terrain in the Pacific Northwest will lift about 20,000 pounds and has a maximum yarding distance of 2,200 feet. Balloon logging sites are free from excessive slash, and log breakage is virtually eliminated, thus increasing yield of merchantable timber.



Skyline logging sites, while usually not as free from broken logs and chunks as balloon logging sites, are considerably cleaner than those logged by high lead or tractor.

Figure 32











# FOREST SERVICE

## Construction and Land Acquisition

Appropriation Act, 1971 .....	\$15,665,700
Budget estimate, 1972 .....	24,912,000
Increase in appropriation .....	<u>+9,246,300</u>
Adjustments to 1971 appropriation:	
Appropriation Act, 1971 .....	15,665,700
Proposed supplemental for pay costs .....	<u>154,000</u>
Adjusted appropriation .....	15,819,700
Budget estimate, 1972 .....	24,912,000
Increase in 1972 program level .....	<u>+9,092,300</u>

## SUMMARY OF INCREASES AND DECREASES (On basis of adjusted appropriation)

	1971	1972 estimate	Increase or decrease
Alleviation of existing pollution problems at recreation, research, and administrative facilities .....	\$7,088,000	\$20,000,000	<u>+\$12,912,000</u>
Development of camping, picnicking, and other recreation facilities	3,214,700	1,058,000	<u>-2,156,700</u>
Construction of buildings, utilities, communications systems, and other facilities .....	2,478,000	2,000,000	<u>-478,000</u>
Non-recurring research construction projects .....	1,185,000	-	<u>-1,185,000</u>
Water resource development construction and land acquisition .....	1,854,000	1,854,000	<u>-</u>
Total .....	<u>15,819,700</u>	<u>24,912,000</u>	<u>+9,092,300</u>



# PROJECT STATEMENT

Project		1971	1972	Increase or
		estimate	estimate	decrease
(1) Forest land management construction:				
(a) Development of recreation-public use areas		\$3,214,700:	\$1,058,000:	-\$2,156,700
(b) Water resource development construction		554,000:	554,000:	- -
(c) Construction for fire, administration, and other purposes		2,478,000:	2,000,000:	-478,000
(2) Research construction		1,185,000:	- -	-1,185,000
(3) Pollution abatement		7,088,000:	20,000,000:	+12,912,000
(4) Land Acquisition, Weeks Act		1,300,000:	1,300,000:	- -
Total available or estimate		15,819,700:	24,912,000:	+9,092,300
Proposed supplemental appropriations for pay costs		-154,000:		
Total appropriation		15,665,700:		

NOTE: Prior to fiscal year 1971, the above activities were funded in the appropriation, Forest protection and utilization. Fiscal year 1970 obligations for these activities are shown under the appropriation, Forest protection and utilization, as follows:

	1970
	Obligations
Recreation-public use development	\$6,914,782
Water resource development construction	3,205,162
Construction for fire, administration, and other purposes	3,130,212
Research construction	930,238
Pollution abatement	2,264,100
Land acquisition, Weeks Act	1,299,221
Total	17,743,715



## CONSTRUCTION AND LAND ACQUISITION

1971 .....	\$15,819,700
1972 .....	24,912,000
Increase .....	+9,092,300

An increase of \$9,092,300 is proposed.

The program provides for the construction and improvement of buildings, utilities, other physical facilities, and land acquisition throughout the National Forests and National Grasslands.

(1a) Development of recreation-public use areas (\$1,058,000, a decrease of \$2,156,700)

The proposed program level will provide for essential quality improvement measures, new construction at 9 sites, and development of minor visitor information facilities.

Projected recreation use in 1972 will reach 186.7 million visitor days, an increase of 15 percent over 1969. The following table illustrates the present situation:

Comparison of Capacity and Use Increases at  
Campgrounds and Picnic Grounds

	Fiscal Year				
	1967	1968	1969	1970	1971
<u>Campgrounds</u>					
Capacity (thousands of people-at-one-time) .....	381.9	397.0	401.3	411.0	418.0
Increase in capacity over previous year (percent) .....	2.7	4.0	1.1	2.4	1.7
Measured and projected increase in use (percent) .....	7.0	8.0	8.0	6.0	6.0
<u>Picnic Grounds</u>					
Capacity (thousands of people-at-one-time) .....	108.6	111.8	113.2	113.6	116.3
Increase in capacity over previous year (percent) .....	3.0	2.9	1.2	0.4	2.4
Measured and projected increase in use (percent) .....	7.0	8.0	8.0	6.0	6.0

The program includes:

Quality improvement, which consists of replacing or upgrading worn out, vandalized, or inadequate facilities, including water and sanitation systems, tables, stoves, traffic control structures, bathhouses, and refuse handling facilities. Increases in capacity do not normally result from this kind of work. Benefits are derived from extending the service life of facilities, maintaining and improving the opportunity for a recreation experience, and preventing unnecessary site deterioration and degradation of the surrounding environment through pollution.

New construction will begin at 9 sites, resulting in an increased capacity of 1,295 people-at-one-time. The increased capacity will relieve some overcrowding and use at existing sites and provide facilities for increased use and persons now forced into undeveloped areas. It will alleviate sanitation and cleanup problems and soil and vegetation deterioration in some general forest areas.

Emphasis will be placed on completion of projects started in previous fiscal years. A list of proposed projects is included in Exhibit I.



Minor Visitor Information Service facilities will be developed to meet visitor needs for orientation and environmental education dealing with natural resource management of the National Forests. It includes interpretive trails for the handicapped and others, informational signs, auto tours, amphitheater, scenic overlooks with interpretive signs, and information stations. Emphasis will continue to be placed on the development of low cost, high quality facilities and services.

#### Examples of Recent Accomplishments

In National Forest developed sites, there was an increase in persons-at-one-time capacity of 10,138 in fiscal year 1970. Capacity of sites developed under recreation use permits also increased during fiscal year 1970 by 3,029 persons-at-one-time. A larger increase is expected in 1971.

Some of the more popular construction completions include the three interpretive trails for the blind in California, Florida, and New Mexico. Here visitors can learn about the National Forest environment and activities in sites specially designed for their enjoyment.

Admissions and user fees charged for use of National Forest developed sites and recreation special-use permit fees are summarized below:

	<u>FY 1969</u>	<u>FY 1970</u>	<u>Change</u>
Recreation special-use permit .....	\$2,468,430	\$2,982,617	+\$514,187
Admissions and user fees .....	<u>1,237,563</u>	<u>1,158,157</u>	<u>-79,406</u>
Total .....	3,705,993	4,140,774	+434,781

#### (1b) Water resource development construction (\$554,000)

Funding at the same level as fiscal year 1971 will provide sanitation and other facilities at new reservoirs necessary to prevent environmental degradation and to protect public health and welfare. A list of proposed fiscal year 1972 projects follows:

#### Water Resource Development Construction

<u>State</u>	<u>Forest</u>	<u>Project</u>	<u>Estimated Cost</u>
Montana .....	Kootenai .....	Libby .....	\$102,000
Utah .....	Uinta .....	Currant Creek Boat Ramp .....	85,000
California .....	Shasta-Trinity .....	Centimudi Boat Ramp .....	44,000
Texas .....	Sabine .....	Indian Mounds .....	110,000
Kentucky .....	Daniel Boone .....	Cave Run .....	102,000
Illinois .....	Shawnee .....	Kinkaid Lake .....	111,000
Total .....			554,000

The Forest Service is responsible for designing and developing public use facilities on National Forest System lands at, and adjacent to, project reservoirs built by other agencies. Impact survey findings and recommendations provide for the protection of water quality and fulfillment of other project purposes by pointing the way to carefully designed public use





development tailored to individual project needs. Facilities include sanitation improvements, camping and picnic sites, swimming beaches, boat ramps, and other public use and information facilities. To serve their intended purpose, these facilities should be installed in time to meet the initial impact of visitor use when a reservoir fills. Installation during the construction period is generally less expensive than after completion of the project.

#### Examples of Recent Accomplishments

Fiscal year 1970 accomplishment included construction and planning of facilities at 6 projects as follows: Libby Reservoir, Montana; Turquoise Reservoir, Colorado; Flaming Gorge Reservoir, Utah; Cannelton Look and Dam and Monroe River Reservoir, Indiana; Allegheny Reservoir, Pennsylvania.

- (1c) Construction for fire, administration, and other purposes (\$2,000,000, a decrease of \$478,000)

Many forest activities take place in remote areas. Small communities in these areas do not have adequate facilities to support the various program activities. Buildings and other facilities must be provided to:

- (1) Furnish office space for Forest Service personnel.
- (2) House Forest Service personnel and their families.
- (3) Furnish shop and storage space for maintaining and storing field equipment and supplies.
- (4) Furnish adequate communications systems.
- (5) Furnish utilities to serve the various structures.
- (6) Furnish ground support for aerial operations.
- (7) Furnish early fire detection.

Construction funds are planned for use as follows:

Dwellings and barracks--Six single family units of standard design to be constructed at a cost of ..... \$195,800

These will be located on the following National Forests:

<u>Location</u>	<u>Amount</u>
North Tongass National Forest, Alaska .....	\$37,800
Pike National Forest, Colorado .....	35,300
Challis National Forest, Idaho (2 units) .....	71,400
Chattahoochee National Forest, Georgia .....	30,600
Mississippi National Forest, Mississippi (subsidized by Mainstream Program) .....	20,700

Sixteen experimental housing units of 11 special designs produced by the Forest Products Laboratory and the Southeastern Experiment Station are to be constructed at a cost of ..... \$286,400



These units are to be constructed for evaluation purposes and for occupancy by Forest Service personnel on an experimental basis. The primary objectives are to:

- (1) Evaluate the potential of these housing designs for Forest Service use.
- (2) Explore the applicability of these designs for use by low-to-moderate income families under conditions similar to those encountered by the Forest Service.
- (3) Demonstrate efficient wood utilization concepts.

The units will be located on sites which were selected to insure public exposure.

Housing is a chief factor in securing quality personnel for remote locations. These experimental houses cannot be used to replace our standard housing designs until such time as they have been fully evaluated.

The 16 units are to be built at an average cost of \$17,900. The designs range from a 2-bedroom dwelling of 576 square feet to a potential 4-bedroom unit of 1,468 square feet. The introduction of new design concepts and variations in site conditions have generated high unit costs for these experimental houses. Recognizing the high cost of conducting an evaluation such as this, the cost estimates are limited to direct project costs.

This undertaking has been coordinated with the Department of Housing and Urban Development and the Farmers Home Administration. Both organizations have offered to provide technical assistance and have assured the Forest Service that this project is in full accord with their programs.

One experimental structure will be constructed on each of the following National Forests:

<u>State</u>	<u>National Forest</u>
Alabama .....	Tuskegee
Alaska .....	North Tongass (a duplex)
Arizona .....	Prescott
California .....	Angeles Sequoia
Colorado .....	Rio Grande
Idaho .....	Targhee
Louisiana .....	Kisatchie
Montana .....	Custer Beaverhead
New Mexico .....	Santa Fe
Ohio .....	Wayne-Moosier
Oregon .....	Willamette
Utah .....	Fishlake
Vermont .....	Green Mountain

Fire lookouts - One is to be constructed on the Umpqua National Forest in Oregon at a cost of ..... \$24,600

Offices - One is to be constructed on the George Washington National Forest in Virginia at a cost of ..... \$49,000

Special projects - One to be constructed at a cost of ..... \$52,000  
The project is described as follows:

Denver Fire Center, Denver, Colorado. The Center will serve as a Regional Fire Control Center and will provide protection for forest lands in Colorado, Wyoming, South Dakota, Nebraska, Utah, Arizona, and New Mexico. The Center is to be primarily an air base with



facilities to accommodate planes, materials, and seasonal employees. The total project is estimated to cost \$952,000. Thirty thousand dollars was appropriated for water and sewerage systems in fiscal year 1971. The \$52,000 proposed at this time will be used to develop fire retardant mixing facilities.

Service and storage buildings - Two to be constructed at a cost of ..... \$51,600

These will be located as follows:

	<u>Amount</u>
Carson National Forest, New Mexico .....	\$40,300
Allegheny National Forest, Pennsylvania ...	11,300

Communications systems (radio and telephone) - Systems will be improved through the installation of new equipment and facilities at a cost of ..... \$910,000

Specific project locations are as follows:

Arizona, Coronado National Forest .....	\$48,000
California, Klamath National Forest .....	119,400
California, Los Padres National Forest ....	54,100
Idaho, Salmon National Forest .....	82,200
Montana, Flathead National Forest .....	204,200
Oregon, Fremont National Forest .....	44,300
Oregon, Willamette National Forest .....	82,000
Wyoming, Shoshone National Forest .....	87,100
20 miscellaneous projects .....	188,700

Site acquisition - Two administrative sites will be purchased at a cost of ..... \$15,400

These will be located within or near:

Ozark National Forest, Arkansas .....	\$4,100
Nicolet National Forest, Wisconsin .....	11,300

Water and sanitation systems - Seven systems are to be constructed at a cost of ..... \$252,900

These will be located on the following National Forests:

<u>State</u>	<u>National Forest</u>	<u>No.</u>	<u>Amount</u>
California .....	Klamath .....	1	\$12,100
California .....	Shasta-Trinity .....	3	129,600
Oregon .....	Ochoco .....	1	40,600
Pennsylvania ...	Allegheny .....	1	37,700
Washington .....	Olympic .....	1	32,900

Quality improvement of existing structures - Upgrading of structures and miscellaneous site improvement work will be accomplished at various locations throughout the National Forest System at a cost of ..... \$162,300

#### Examples of Recent Accomplishments

The following units were constructed during fiscal year 1970:





<u>No.</u>	<u>Units</u>
8	Dwellings and barracks
1	Fire lookout
5	Service and storage buildings
2	Offices
15	Water and sanitation systems

Approximately \$1,577,000 was used for communication systems, quality improvement of existing structures, and ground support for aerial activities.

(2) Research construction (None proposed. \$1,185,000 appropriated in 1971.)

The 1971 appropriation provided for the following non-recurring items, all of which are under construction or being planned:

<u>Location</u>	<u>Facility</u>	<u>Amount</u>
Oregon, Corvallis	Construction, 2nd stage addition to Forestry Sciences Laboratory	\$500,000
Wisconsin, Rhinelander	Construction, 1st stage addition to Institute of Forest Genetics	490,000
West Virginia, Princeton	Planning, addition to the Forest Products Marketing Laboratory	55,000
Georgia, Macon	Planning, addition to the Southern Forest Fire Laboratory	140,000

The preparation of architectural plans and specifications is completed for laboratories at the following 15 locations:

<u>Planning Appropriation</u>		<u>Location</u>	<u>Facility</u>	<u>Estimated Cost of Construction</u>
<u>Year</u>	<u>Amount</u>			
1970	\$71,000	Minnesota, Duluth	Forest Marketing & Utilization Laboratory	\$850,000
1968	45,000	Idaho, Moscow	Forestry Sciences Laboratory	1,320,000
1968	50,000	Mississippi, Gulfport	Forest Insect & Disease Laboratory	800,000
1968	57,000	North Carolina, Franklin	Coweeta Hydrology Laboratory	790,000
1968	95,000	North Carolina, Research Triangle	Forestry Sciences Laboratory	1,455,000
1968	31,000	Wisconsin, Rhinelander	Institute of Forest Genetics, 2nd stage addition	305,000
1967	75,000	New Hampshire, Durham	Forestry Sciences Laboratory	1,300,000
1967	170,000	Oregon, Corvallis	Forestry Sciences Laboratory, 3rd stage addition	3,150,000
1967	37,000	Utah, Provo	Shrub Improvement Laboratory	745,000
1967	40,000	Vermont, Burlington	Sugar Maple Laboratory	1,050,000
1967	180,000	Wisconsin, Madison	Forest Products Laboratory, remodeling	4,830,000
1967	40,000	Kentucky, Berea	Forestry Sciences Laboratory	1,200,000
1967	28,000	Nebraska, Lincoln	Shelterbelt Laboratory	680,000



<u>Planning Appropriation</u>		<u>Location</u>	<u>Facility</u>	<u>Estimated Cost of Construction</u>
<u>Year</u>	<u>Amount</u>			
1965	\$50,000	New Mexico, Albuquerque	Forestry Sciences Laboratory	\$935,000
1965	60,000	Pennsylvania, Radnor	Forest Service Building	4,850,000

(3) Pollution abatement (\$20,000,000, an increase of \$12,912,000)

The increase will be used to comply with Executive Order 11507 which directs that abatement of water and air pollution at existing Federal facilities be completed or underway by December 31, 1972. It will allow initiating a program to combat air pollution through proper treatment of solid waste.

These pollution abatement programs are vitally needed to protect and maintain the resources and environment of the National Forests. They will:

- (a) Help prevent a general degradation of the National Forests.
- (b) Ensure a continued flow of high quality water for domestic and irrigation use.
- (c) Provide analysis for guidance for remedial measures necessary to ensure that activities on or near the National Forests will comply with the Clean Air Act, as amended (42 USC 1857).

Water Pollution Abatement (\$18,650,000)

The increase of \$11,562,000 will allow funding 597 projects.

This work is urgently needed to protect public health and to maintain the quality of the environment.

Following is a summary of proposed projects costing \$75,000 or more scheduled for undertaking in 1972. Proposed projects costing less than \$75,000 are shown as Other.

<u>Region</u>	<u>Project</u>	<u>Construction Cost</u>
Northern	Missoula Aerial Fire Depot .....	\$160,000
	Powell Ranger Station .....	80,000
	Holland Lake Campground .....	90,000
	Outlet .....	81,000
	Slate Creek Ranger Station .....	90,000
	Other .....	443,000
	Total, Northern Region .....	<u>944,000</u>
Rocky Mountain	Dillon .....	322,000
	Maroon Lake .....	140,000
	Rollinsville Central Disposal .....	113,000
	North Fork Shoshone Central Disposal .....	132,000
	Upper Poudre Central Disposal .....	100,000
	Burgess Central Disposal .....	90,000
	Snowy Range Central Disposal .....	90,000
	Pactola .....	130,000
	Other .....	<u>422,000</u>
Total, Rocky Mountain Region .....		<u>1,539,000</u>



<u>Region</u>	<u>Project</u>	<u>Construction Cost</u>
Southwestern	Big Lake Recreation Area .....	\$1,400,000
	Sabino Canyon Visitor Center .....	162,000
	Lake Roberts Picnic Ground .....	115,000
	Canjilon Administrative Site .....	86,000
	Lynx Lake Boat Landing .....	200,000
	Questa Administrative Site .....	120,000
	Tres Piedras Administrative Site .....	112,000
	Ghost Ranch .....	100,000
	Other .....	<u>1,111,000</u>
	Total, Southwestern Region .....	<u>3,406,000</u>
Intermountain	Mirror Lake Central Disposal .....	120,000
	Flat Rock .....	189,000
	Other .....	<u>645,000</u>
	Total, Intermountain Region .....	<u>954,000</u>
California	Pope-Baldwin .....	914,000
	William Kent Station .....	214,000
	Kaspian Picnic Ground .....	117,000
	June Lake Loop .....	625,000
	Bass Lake .....	156,000
	Harrison Gulch Ranger Station .....	166,000
	Barton Flats Area Sewer .....	526,000
	Cottonwood Creek Group .....	85,000
	Other .....	<u>994,000</u>
	Total, California Region .....	<u>3,797,000</u>
Pacific Northwest	Diamond Lake .....	675,000
	Multnomah Falls .....	100,000
	Rigdon Ranger Station .....	100,000
	Redmond Air Center .....	137,000
	Steamboat Ranger Station .....	155,000
	Unity Ranger Station .....	80,000
	Glide Ranger Station .....	120,000
	Other .....	<u>880,000</u>
	Total, Pacific Northwest Region .....	<u>2,247,000</u>
Southern	Powells Fort .....	110,000
	Olustee Beach .....	292,000
	Juniper Springs .....	415,000
	Caney Lakes .....	759,000
	Lake Winfield Scott .....	113,000
	Sliding Rock .....	185,000
	Ratcliff Lake .....	99,000
	Valentine Lake .....	100,000
	Cliffside .....	219,000
	Choctaw Lake Recreation Area .....	355,000



<u>Region</u>	<u>Project</u>	<u>Construction Cost</u>
Southern (continued)	Other .....	799,000
	Total, Southern Region .....	3,446,000
Eastern	Clearwater Beach Central Dump .....	140,000
	Lake Sherwood Recreation Area .....	330,000
	Twin Lake Recreation Area .....	120,000
	North Star Campground .....	75,000
	Lake Michigan Campground .....	120,000
	Brevoort Lake Campground .....	235,000
	Boot Lake Campground .....	110,000
	Black River Recreation Area and Center .....	200,000
	Other .....	810,000
	Total, Eastern Region .....	2,140,000
Alaska	R. Quartz Creek Campground .....	75,000
	Other .....	102,000
	Total, Alaska Region .....	177,000
	Total .....	18,650,000

Air Pollution Abatement (\$1,350,000)

The increase of \$1,350,000 will be used to begin a program to abate air pollution through proper disposal of solid waste. It will permit Forest Service coordination of solid waste disposal problems with local and county officials, Forest Service special use permittees, private citizens, State and other Federal agencies. This will eliminate duplication of effort in developing sanitary fill disposal sites, equipment, manpower, and collection routes. It will also reduce the number of disposal sites, allowing better land management. About 50 percent of the needed planning and design necessary to comply with the Clean Air Act and Executive Order 11507 on solid waste disposal will also be accomplished. The initial program is primarily directed toward coordination, general planning and design.

The proposed program in fiscal year 1972 has been developed based on general needs of each region as follows:

<u>Region</u>	<u>Amount</u>
Northern .....	\$165,000
Rocky Mountain .....	150,000
Southwestern .....	130,000
Intermountain .....	185,000
California .....	165,000
Pacific Northwest .....	170,000
Southern .....	210,000
Eastern .....	145,000
Alaska .....	30,000
Total .....	1,350,000





#### Examples of Recent Accomplishments

In fiscal year 1971, pollution abatement funds of \$7,088,000 will be used to accomplish pollution control at existing facilities to the quality standards adopted pursuant to the Federal Water Pollution and Clean Air Acts, or as prescribed pursuant to E.O. 11507.

Approximately 15 percent of total will be spent on the continuing problem of exporting waste from the Tahoe Basin in California. Approximately 8 percent of total will be spent on construction of pollution abatement facilities at Diamond Lake in Oregon.

An estimated 25 percent of total will be spent on project planning and design such as: Big Lake in Arizona, Oak Creek Canyon in Arizona, Flat Rock in Idaho, Bass Lake in California, Clearwater in Florida, Twin Lake in Pennsylvania, Loleta in Pennsylvania, and Mapgood in Vermont.

The remaining 52 percent will be spent for construction of continuing projects, new projects, or completion of regional development plans such as: South Lake Tahoe in California, Diamond Lake in Oregon, Clearwater in Florida, Caney Lake in Louisiana, Maroon Lake in Colorado, Gardens Bluff in Tennessee, and Ratcliff Lake in Texas.

#### (4) Land acquisition, Weeks Act (\$1,300,000)

The acquisition of key inholdings within the National Forests and the National Forest purchase units becomes increasingly urgent as the demands upon wildlands and farm lands for highway construction, industrialization, and summer home development increase. The development program for the National Forests recognizes the need to acquire additional private inholdings in need of land rehabilitation. Included are lands depleted by repeated fires, poor logging practices, clearing and cultivation of steep and erodible mountain lands, disturbed mineral exploitation areas, and submarginal or marginal farms that should be removed from farming operations and managed for timber production and/or grazing. These are lands located primarily in economically depressed areas. Sound management of acquired areas will contribute to:

- (1) Stabilization of the local economy.
- (2) Environmental enhancement.
- (3) Prevention of stream pollution in rural America.
- (4) Improved timber production.

Lands primarily valuable for recreation are not included in this program, since acquisition of such lands is financed under the Land and Water Conservation Fund Act program.

The \$1.3 million included in the fiscal year 1972 estimate will be used to acquire an estimated 9,000 acres in the Redbird Purchase Unit in eastern Kentucky at a cost of \$509,000. The remaining \$791,000 will be used to continue the acquisition programs in purchase units in the eastern United States, plus a minor program in Nebraska. Emphasis is given in this part of the program to the National Forests in Arkansas, Illinois, Indiana, Michigan, and Ohio.

See the tabulation at the end of this section for more detailed information on the actual and planned accomplishments in fiscal years 1970-1972 (Exhibit II).

#### Examples of Recent Accomplishments

In 1970 a total of 157 tracts were contracted for purchase under authority of the Weeks Act using regular appropriated Weeks Act funds. These cases involved the acquisition of 17,702 acres at a total cost of \$1,299,221. These transactions involve lands suited to timber production and watershed protection in areas where National Forest ownership needs to be consolidated or extended to facilitate these programs. Many of the smaller parcels, 20-40-80 acres in size, are purchases made at a price equal to, or nearly equal to, the cost that would otherwise have been incurred to survey, post, and mark the National Forest boundary surrounding the property.



EXHIBIT I--Recreation-Public Use--FY 1972  
Capital Investments--Distribution by National Forests

Region:	Forest and Project	:Quality improvement: New sites, expansion, and planning:				
:	:	:of existing sites:	Camp and:	: Other:	:	:
:	:	: Sewage:	: picnic:	:Sewage:developments:	:	: Total:
:	:	:systems:Estimated: sites	:systems: (No. of	:Estimated: capital	:	:
:	:	: (No.): cost	:(Capacity): (No.): sites)	: cost	:investment	:
<u>Other Projects:</u>						
Miscellaneous*		\$44,000				\$44,000
<u>Minor VIS Facilities:</u>						
Clearwater			1	\$2,100		2,100
Custer			1	10,200		10,200
Lolo			1	1,100		1,100
Subtotal, Northern Region		44,000	3	13,400		57,400
<u>Other Projects:</u>						
Miscellaneous*		\$44,000				\$44,000
<u>Minor VIS Facilities:</u>						
Bighorn			1	\$2,100		2,100
Gunnison			2	3,200		3,200
Medicine Bow			1	1,600		1,600
Nebraska (Central Plains Forestry Office)			1	1,800		1,800
Rio Grande			1	3,000		3,000
Routt			2	1,700		1,700
Subtotal, Rocky Mountain Region		44,000	8	13,400		57,400
<u>Other Projects:</u>						
Miscellaneous*		\$44,000	320	1	\$109,000	\$44,000
Toiyabe (Bootleg C.G.)						109,000
<u>Minor VIS Facilities:</u>						
Humboldt				1	4,200	4,200
Teton				1	9,200	9,200
Subtotal, Intermountain Region		44,000	320	1	122,400	166,400

NORTHERN

ROCKY MOUNTAIN

INTERMOUNTAIN



EXHIBIT I--Recreation-Public Use--FY 1972  
Capital Investments--Distribution by National Forests

Region:	Forest and Project	Quality improvement: : of existing sites :	New sites, expansion, and planning : : Camp and : : Other :	Sewage : : picnic : Sewage:developments :	systems:Estimated: sites :systems: (No. of :Estimated: capital : (No.) : cost : (Capacity): (No.) : sites) : cost : investment	
CALIFORNIA	Other Projects:					
	Miscellaneous*	\$44,000	465		\$204,600	\$44,000 204,600
	Inyo (Oh Ridge)					
	Minor VIS Facilities:					
	Angeles			1	1,000	1,000
	Lassen			1	5,600	5,600
	Tahoe			3	6,800	6,800
	Subtotal, California Region	44,000	465	5	218,000	262,000
	Other Projects:					
	Miscellaneous*	\$44,000				\$44,000
PACIFIC NORTHWEST	Minor VIS Facilities:					
	Mt. Hood			1	\$13,400	13,400
	Subtotal, Pacific Northwest Region	44,000		1	13,400	57,400
	Other Projects:					
EASTERN	Miscellaneous*	\$44,000	125		\$6,200	\$44,000 6,200
	Shawnee (Dutchman)				2,100	2,100
	Wayne (Buckhorn)			1	25,600	25,600
	Monongahela (Seneca Rocks)				10,300	10,300
	Monongahela (Spruce Knob Lake)			1	3,500	3,500
	Ottawa (Sylvania)		1	1		
	Minor VIS Facilities:					
	Chequamegon			1	5,100	5,100
	Clark			2	5,300	5,300
	Green Mountain			1	3,100	3,100
	Subtotal, Eastern Region	44,000	775	1	61,200	105,200
	Other Projects:					
	Miscellaneous*					





EXHIBIT I--Recreation-Public Use--FY 1972  
Capital Investments--Distribution by National Forests

Region:	Forest and Project	:Quality improvement:				:New sites, expansion, and planning:				: Total
		:of existing sites:				:Camp and : Other :				
		:Sewage:		:picnic ; Sewage:developments:		:systems:Estimated:		:sites ;systems: (No. of :Estimated: capital		
		: (No.) : cost : (Capacity): (No.) : sites)		: (No.) : cost : investment						
Other Projects:										
SOUTHERN	Miscellaneous*		\$44,000	360	1	1		\$107,300	\$44,000	
	Ozark-St. Francis (Blanchard Caverns)								107,300	
	Minor VIS Facilities:									
	Chattahoochee					1		13,400	13,400	
	Subtotal, Southern Region		44,000	360	1	2		120,700	164,700	
Other Projects:										
SOUTHWESTERN	Miscellaneous*		\$44,000	190				\$86,900	\$44,000	
	Apache (Winn G.G.)								86,900	
	Minor VIS Facilities:									
	Cibola					2		13,400	13,400	
	Subtotal, Southwestern Region		44,000	190		2		100,300	144,300	
Minor VIS Facilities:										
INSTITUTE OF TROPICAL FORESTRY	Caribbean					1		\$13,400	\$13,400	
Other Projects:										
ALASKA	Miscellaneous*		\$16,400						\$16,400	
	Minor VIS Facilities:									
	North Tongass					1		\$13,400	13,400	
	Subtotal, Alaska Region		16,400			1		13,400	29,800	
	TOTALS, ALL REGIONS		368,400	2,110	3	32			689,600	1,058,000



EXHIBIT I--Recreation-Public Use--FY 1972  
Capital Investments--Distribution by National Forests

Note: P.G. - Picnic Ground  
C.G. - Campground  
VIS - Visitor Information Center

\* To provide supplies for Project Mainstream (manpower assistance programs relating to construction of National Forest recreation facilities) and to provide updated site design to coordinate long range quality improvement programs with planned water pollution abatement projects.



EXHIBIT II -- WEEKS ACT PURCHASES 1970-1972

	FY 1970 Actual			FY 1971 Estimates			FY 1972 Estimated		
	Options:	Acres	Obligation	Options:	Acres	Obligation	Options:	Acres	Obligation
Alabama - Talladega .....	1:	80:	\$9,000	1:	80:	\$9,000	:	:	:
Tuskegee .....	:	:	:	1:	156:	13,000	:	:	:
Wm. B. Bankhead .....	1:	10:	300	:	:	:	:	:	:
Arkansas - Ouachita .....	3:	369:	23,418	2:	120:	9,000	2:	290:	\$17,000
Ozark .....	6:	1,538:	82,541	8:	1,363:	57,000	10:	1,092:	59,000
Georgia - National Forests in Georgia ..	1:	20:	2,000	:	:	:	:	:	:
Illinois - Shawnee .....	9:	659:	62,641	12:	1,000:	82,000	12:	800:	68,000
Indiana - Hoosier .....	20:	1,884:	131,968	15:	1,300:	80,000	9:	750:	63,750
Kentucky - Redbird Purchase Unit .....	25:	2,899:	91,397	8:	8,500:	560,000	35:	9,000:	509,000
Jefferson .....	5:	3,852:	217,175	2:	1,170:	33,000	:	:	:
Daniel Boone .....	2:	25:	4,392	1:	40:	5,000	:	:	:
Louisiana - Kisatchie .....	1:	42:	840	5:	380:	25,000	4:	800:	12,800
Michigan - Hiawatha .....	22:	345:	15,450	3:	250:	5,000	11:	340:	24,000
Huron-Manistee .....	1:	20:	400	:	:	:	4:	320:	7,600
Ottawa .....	2:	206:	3,475	3:	200:	5,000	2:	800:	8,500
Minnesota - Chippewa .....	:	:	:	:	:	:	1:	175:	8,500
Superior .....	2:	170:	7,100	5:	425:	15,000	:	:	:
Missouri - Clark .....	9:	750:	31,500	8:	1,000:	45,000	3:	350:	16,000
Mark Twain .....	:	:	:	:	:	:	:	:	:



EXHIBIT II -- WEEKS ACT PURCHASES 1970-1972

	FY 1970 Actual			FY 1971 Estimated			FY 1972 Estimated		
	: Options:	: Acres:	: Obligation:	: Options:	: Acres:	: Obligation:	: Options:	: Acres:	: Obligation:
Nebraska - Nebraska .....	:	:	:	:	:	:	:	:	:
New Hampshire - White Mountain .....	:	:	:	:	:	:	:	:	:
Ohio - Wayne .....	19:	2,303:	\$119,288:	16:	2,500:	90,000:	9:	750:	63,750
Oklahoma - Ouachita .....	1:	20:	700:	:	:	:	:	:	:
South Carolina - Sumter .....	2:	38:	5,621:	1:	140:	20,000:	:	:	:
Tennessee - Cherokee .....	4:	370:	26,400:	1:	116:	8,000:	4:	426:	36,500
Pennsylvania - Allegheny .....	:	:	:	:	:	:	:	:	:
Vermont - Green Mountain .....	2:	79:	11,560:	2:	150:	15,000:	2:	162:	14,700
Virginia - George Washington .....	1:	96:	9,625:	1:	200:	22,000:	1:	235:	76,500
Jefferson .....	9:	915:	44,722:	5:	372:	21,000:	:	:	:
West Virginia - Monongahela .....	3:	282:	20,494:	1:	900:	40,000:	4:	120:	40,700
Jefferson .....	1:	131:	2,874:	:	:	:	:	:	:
Wisconsin - Chequamegon .....	4:	560:	16,780:	2:	200:	10,000:	2:	320:	8,500
Nicolet .....	1:	39:	700:	3:	300:	10,000:	2:	200:	12,800
Subtotal .....	157:	17,702:	942,351:	108:	21,102:	1,196,000:	123:	17,426:	1,086,400
Surveys and related acquisition costs ..	:	:	356,870:	:	:	104,000:	:	:	213,600
Total obligations .....	:	:	1,299,221:	:	:	1,300,000:	:	:	1,300,000





## CONSTRUCTION

### Change in Appropriation Title

Change in appropriation title is proposed as follows. New language is underscored.

#### Construction and Land acquisition

For construction and acquisition of buildings and other facilities required in the conservation, management, investigation, protection and utilization of national forest resources and the acquisition of .....

The proposed change in appropriation title is designed to more accurately describe the work to be done under this appropriation. Acquisition of lands under the Act of March 1, 1911 (Weeks Act) is for the purpose of facilitating the administration, management, and consolidation of the National Forests and not merely for the purchase of sites to be used for construction of buildings and other facilities.





Lucerne Boat Ramp in Flaming Gorge, National Recreation Area. Construction funds are used to develop similar public facilities at reservoirs located in the National Forests.









### COOPERATIVE RANGE IMPROVEMENTS

Appropriation, 1971 .....	\$700,000
Budget estimate, 1972 .....	<u>700,000</u>

Part of the grazing fees from the National Forests, when appropriated, are used for revegetation of depleted rangelands, construction and maintenance of range improvements, rodent control, and eradication of poisonous plants and noxious weeds. These funds are advanced to and merged with the appropriation, Forest protection and utilization, subappropriation, Forest land management.

Section 12 of the Act of April 25, 1950, (Granger-Thye Act) provides that of the money received from grazing fees by the Treasury from each National Forest during each fiscal year there shall be available at the end thereof when appropriated by Congress an amount equivalent to 2 cents per animal month for sheep and goats and 10 cents per animal month for other kinds of livestock under permit on such National Forest during the calendar year in which the fiscal year begins.

Since figures for animal months permitted are not available until after more than one-half of the fiscal year for which funds are appropriated has elapsed, the 1972 appropriation request of \$700,000 necessarily represents the best current approximation of the amount which will become available in the calendar year 1971 under the animal-months-permitted formula.

For calendar year 1969, the latest available figures, animal months permitted were 6,659,748 for cattle and horses, and 5,111,425 for sheep and goats. This calculates to \$768,203 available under the formula.







# FOREST ROADS AND TRAILS

Appropriation Act, 1971 .....	\$115,000,000
Budget estimate, 1972 .....	135,300,000
Increase .....	+20,300,000

## PROJECT STATEMENT

The following tabulation reflects obligations for the total program for the construction and maintenance of roads and trails on the National Forests by combining the funds available under the appropriation Forest roads and trails with the permanent appropriation of 10 percent of National Forest receipts.

Project	1970	1971 estimate	1972 estimate	Increase or decrease
1. Construction of roads and trails .....	\$121,582,317	\$142,328,000	\$143,440,000	+\$1,112,000
2. Maintenance of roads and trails .....	33,517,199	27,450,000	26,560,000	-890,000
Total obligations .....	155,099,516	169,778,000	170,000,000	+222,000
Transfer from Roads and trails for States .....	-31,206,198	-28,761,091	-32,760,000	-3,998,909
Program under Forest roads and trails contract authorization .....	123,893,318	141,016,909	137,240,000	-3,776,909
Change in unfunded obligations .....	-23,323,318	-26,016,909	-1,940,000	+24,076,909
Total appropriation or estimate .....	100,570,000	115,000,000	135,300,000	+20,300,000

The increase of \$20,300,000 in the appropriation is required in 1972 to meet cash requirements for the liquidation of obligations incurred for the construction and maintenance of forest roads and trails pursuant to the authorization contained in the Federal-Aid Highway Act. The appropriation of \$135.3 million for 1972 will be used to:

- (1) Pay obligations of the prior years which will be due for payment.
- (2) Pay the portion of the 1972 obligations of \$137.2 million contract authorization which will require cash payment in that year.

Following is a summary of the road and trail construction and maintenance to be undertaken in 1972 as compared with fiscal year 1971:

	FY 1971		FY 1972		Change	
	Miles	Amount (in thousands)	Miles	Amount (in thousands)	Miles	Amount (in thousands)
Recurrent road maintenance.....	122,400	\$21,864	124,000	\$22,560	+1,600	+\$696
Recurrent trail maintenance.....	100,900	4,686	100,500	4,686	-400	
Road construction..	1,529	108,374	1,500	109,900	-29	+1,526
Trail construction..	950	4,000	370	2,000	-580	-2,000
Surveys, plans, and supervision (timber purchaser roads).....	6,200	23,000	6,200	23,000		
Supplementing tim- ber purchaser construction.....	1,200	7,654	1,200	7,654		
Road purchase.....		200		200		
Total program level.....		169,778		170,000		+222



The \$222,000 program increase is needed to continue in 1972 the road construction program in support of National Forest management plans. This program will help make it possible to maintain the timber supply over time, and make some additional timber available through such efforts as salvage harvest and thinning. Demands on the budget require many short-term decisions to delay planned road construction projects required to adequately support the timber harvesting program. Road construction activities were postponed and realigned with the expectations of a future increased construction program to recapture delay in projects. This time lag in construction of roads and additional time necessary to carry out silviculture practices and to get timber cut and hauled to the mill makes it imperative to maintain the forest road and trail program at highest level possible with funds available. Presently inaccessible areas must be made available in the years ahead for more intensive management. Through timber sale contract allowances, timber purchasers will continue to build many roads tributary to major access, needed to harvest individual sale areas. These roads are also a part of the total development system. Planning, surveying, design, supervision of construction, and, in some cases, supplemental financing, of roads constructed from timber sale credits are funded from appropriated funds.

At the proposed fiscal year 1972 program level, construction of roads to support activities other than timber will be a minimum amount that is required in support of facilities underway or existing and needing roads to become fully functional and operational.

The objectives of the road and trail program are to provide, maintain, and operate with optimum efficiency all of the transportation improvements needed to accomplish the land and resource management, protection, and utilization goals of the Forest Service at the lowest cost of transportation consistent with protecting the watershed, preventing erosion and permanent damage to the natural environment, scenic resource, and fish and wildlife habitat.

All management objectives of the National Forests involve the transportation system either directly or indirectly. Management objectives become so enmeshed with a required transportation system that it is impossible to associate a single road project with only one resource unless it is for very short periods. Even then, other resources are affected and are the factors which determine adequacy.

Construction of roads takes time. Projects contracted for in any given year will usually not be completed until one or two years later. Translated to resource management needs, this means that scheduling the same or a reduced program level for roads in any given year will affect the ability to adequately continue or expand many other National Forest programs two years and more in the future.

An adequate system of forest development roads and trails is essential to insure the continued contributions and values of the National Forest System. The presence or lack of access by road or trail has a direct or controlling influence on the proper management and beneficial use of National Forest lands and resources. This factor largely determines the value of timber that can be marketed, the size, duration, and distribution of timber sales, and the level of salvage cuttings. It strongly influences the effectiveness of measures for protecting these lands from fire, insects, disease, and other destructive forces. It influences the level of use made of recreation, wildlife, and other resources of the National Forest.

Improvement of rural life is one of the major objectives of the Department and the Forest Service. The goal is to increase the economic and cultural opportunities of rural people to insure a pattern of living comparable to that of the rest of the nation. Good roads expand opportunities for rural development. Extending the Forest road system is essential to rural communities which depend upon National Forest resources for a livelihood. Rural businesses and industries depend on access provided to National Forests to move the forest goods and raw materials needed.





The National Forests are endowed with bountiful recreation opportunities and sites. They serve the urban dweller seeking relaxation and open space. Roads make this possible. An adequate National Forest transportation system is essential for both the economic and social well being of urban and rural America.

The following tabulation shows the current status of the forest roads and trails system and projected needs:

<u>Item</u>	<u>Existing Mileage</u>	<u>Mileage Needing Reconstruction</u>	<u>Additional Mileage Needed</u>
Roads	196,565	145,398	151,716
Trails	99,759	49,496	23,020

#### Summary of Work Progress and Accomplishment

	<u>By the Government</u>			<u>By Timber Purchaser</u>		
	<u>FY 1970</u>	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1970</u>	<u>FY 1971</u>	<u>FY 1972</u>
Roads (miles)	1,324	1,529	1,500	7,380	6,200	6,400
Trails (miles)	950	950	370	- -	- -	- -

#### Authorizations for Appropriations a/

<u>Fiscal Year</u>	<u>Construction</u>	<u>Maintenance</u>	<u>Total</u>	<u>Funded</u>	<u>Unfunded</u>
1970	\$136,482,800	\$33,517,200	\$170,000,000	\$170,000,000	
1971	142,550,000	27,450,000	170,000,000	5,244,000	\$164,756,000
1972	143,440,000	26,560,000	170,000,000		170,000,000
	422,472,800	87,527,200	510,000,000	175,244,000	334,756,000

a/ The annual appropriation language and the Department presentation combine the appropriation for Forest roads and trails made pursuant to 23 USC 205 and the appropriation of 10 percent of forest receipts for construction and maintenance of roads and trails pursuant to 16 USC 501. This merger of funds is made in order to simplify the programing, allotment, and accounting of funds at the field level. Since the accounts for these two funds are merged, it is not practicable to distribute obligations and expenditures between the two appropriations on a precise basis. The amounts shown for the Forest roads and trails appropriation are a pro-rata based on the percentage that contract authorization used under the appropriated funds is of total available funds. Expenditure amounts for maintenance are based on all such obligations requiring cash payment during the fiscal year.

#### Status of Unfunded Authorizations

Unfunded contract authorizations beginning of 1971 .....	\$415,056,000
Federal-Aid Highway Act of 1970 (1972 authorization available in 1971) .....	170,000,000
Appropriation, 1971 .....	-115,000,000
Total unfunded beginning of 1972 .....	470,056,000
Federal-Aid Highway Act of 1970 (1973 authorization available in 1972) .....	170,000,000
1972 Budget estimate (cash requirements) .....	-135,300,000
Balance to remain unfunded as of June 30, 1972 .....	504,756,000

#### Analysis of Cash Requirements

1. Unliquidated obligations, June 30, 1970 .....	68,924,240
2. Estimated cash requirements to finance 1971 program .....	55,850,843
3. Total cash requirements by June 30, 1971 .....	124,775,083
4. Less cash on hand 1970: Balance from 1970 .....	\$9,775,083
Appropriation, 1971 ...	115,000,000
	124,775,083



Analysis of Cash Requirements--continued

5. Obligations in 1971 and prior years for which cash was not provided in items 1 and 2 .....	\$46,600,000
6. Estimated cash required to finance 1972 program .....	<sup>a/</sup> 83,700,000
7. Reserve .....	5,000,000
8. Total cash required in 1972 .....	<u>135,300,000</u>

<sup>a/</sup> An estimated 61 percent of the \$137,240,000 new obligations will require cash payments during the fiscal year.

**GEOGRAPHIC BREAKDOWN OF OBLIGATIONS**

**Forest Roads and Trails**

	<u>FY 1971</u>	<u>FY 1972</u>
Alabama .....	\$609,200	\$609,200
Alaska .....	4,579,800	4,579,800
Arizona .....	4,428,400	4,428,400
Arkansas .....	1,672,000	1,672,000
California .....	32,500,000	32,500,000
Colorado .....	7,295,400	7,295,400
District of Columbia .....	3,809,200	4,031,200
Florida .....	783,300	783,300
Georgia .....	1,390,100	1,390,100
Idaho .....	17,800,000	17,800,000
Illinois .....	274,000	274,000
Indiana .....	171,300	171,300
Kansas .....	2,400	2,400
Kentucky .....	752,600	752,600
Louisiana .....	687,200	687,200
Maine .....	182,000	182,000
Michigan .....	2,883,100	2,883,100
Minnesota .....	2,275,400	2,275,400
Mississippi .....	754,900	754,900
Missouri .....	789,500	789,500
Montana .....	10,521,600	10,521,600
Nebraska .....	177,100	177,100
Nevada .....	859,600	859,600
New Hampshire .....	565,800	565,800
New Mexico .....	5,725,600	5,725,600
New York .....	15,200	15,200
North Carolina .....	934,800	934,800
North Dakota .....	136,500	136,500
Ohio .....	351,100	351,100
Oklahoma .....	157,900	157,900
Oregon .....	33,377,300	33,377,300
Pennsylvania .....	1,136,900	1,136,900
Puerto Rico .....	25,000	25,000
South Carolina .....	516,100	516,100
South Dakota .....	1,519,500	1,519,500
Tennessee .....	652,200	652,200
Texas .....	505,900	505,900
Utah .....	3,706,400	3,706,400
Vermont .....	527,600	527,600
Virginia .....	3,046,600	3,046,600
Washington .....	16,019,600	16,019,600
West Virginia .....	1,237,600	1,237,600
Wisconsin .....	1,175,700	1,175,700
Wyoming .....	<u>3,246,600</u>	<u>3,246,600</u>
Total .....	169,778,000	170,000,000

Note: Above planned obligation levels would be subject to adjustments required by emergency conditions and situations.









# ACQUISITION OF LANDS FOR NATIONAL FORESTS, SPECIAL ACTS

Appropriation Act, 1971 ..... \$80,000  
 Budget estimate, 1972 ..... 80,000

## PROJECT STATEMENT

Project and Authority	: 1970	: 1971	: 1972 estimate	: Increase or decrease
1. Cache National Forest, Utah, Act of 5/11/38, as amended .....	\$15,735	\$20,000	\$20,000	- -
2. Uinta-Wasatch National Forests, Utah, Act of 8/26/35, as amended .....	20,000	20,000	20,000	- -
3. Toiyabe National Forest, Nevada, Act of 6/25/38, as amended .....	7,900	8,000	8,000	- -
4. Angeles National Forest, California, Act of 6/11/40 .....	- -	32,000	32,000	- -
5. Cleveland National Forest, California, Act of 6/11/40 .....	30,952	- -	- -	- -
Unobligated balance reverted to National Forests Fund .....	5,413	- -	- -	- -
Total available or estimate .....	80,000	80,000	80,000	- -

The Congress has enacted several special laws which authorize appropriation from the receipts of specified National Forests for the purchase of lands to minimize erosion and flood damage. Amounts appropriated and laws under which authorized are shown above.

These are critical watershed lands needing soil stabilization and vegetative cover restoration to prevent serious erosion and damaging floods within these National Forests. Land treatment measures must be applied and subsequently maintained on all lands in these areas to make corrective action fully effective. To assure full program effectiveness, the intermingled private lands must be acquired by the Federal Government. The results will be reflected in improved watershed conditions, social benefits, and development of economic strength in local communities.

During fiscal year 1970, 600 acres of land were contracted for purchase under the special purchase authorities applying to the Cache National Forest in Utah.

Cache National Forest. In fiscal year 1970, funds were available from two sources for the purchase of lands within the Cache National Forest in Utah.

1. The Receipts Act of May 11, 1938, as amended -- \$20,000. This is an annual appropriation.
2. The Act of July 24, 1956 -- \$200,000 was appropriated under this authority in fiscal years 1957 through 1960. These funds remain available until expended. Through fiscal year 1970, \$189,163 has been obligated from this appropriation.

These funds are used to acquire key tracts of land in the steep, rough, and highly important watershed areas lying north of the Ogden River along the Wasatch front and on Wellesville Mountain of the Cache National Forest. These are rugged mountain lands above the river valley which have been damaged and their watershed functions impaired through forest fires or overgrazing. This contributes to excessive rainfall runoff causing severe erosion. The damaged watershed lands are potential sources of floods and mudrock flows. Many tracts of land are located in the north fork of Ogden River and on the drainage of Pineview Reservoir, a Federal reclamation project. Others are within the watersheds of the city of Ogden and the other small towns along the Wasatch front. Public ownership of these lands and subsequent restoration and protection of their vegetative cover is a highly important part of a vigorous cooperative program with the local community and agencies.



The appropriation of \$20,000 under the Act of May 11, 1938, is from receipts of the Cache National Forest. In the absence of this appropriation, the State of Utah would receive 25 percent of these receipts for roads and school purposes in the local counties involved. Therefore, the local counties, in effect, are contributing one-fourth of the amount of this appropriation. These appropriations are extremely important to the continuation of a vital and worthwhile program extending almost thirty years and shared in by both the local agencies and the Federal Government through the National Forests.

The 1956 Act requires that expenditures of Federal funds be matched by contributions by local agencies or people. This requirement has been met through donations of money and lands valued at \$189,163. The remainder of the contributions in the amount of \$10,837 are expected in fiscal year 1971.

Through fiscal year 1970, 28,857 acres have been approved for purchase pursuant to the Receipts Act of 1938, and 15,957 acres under the Special Act of 1956. The 1971 objective is to acquire 840 additional acres of these critical watershed lands. A similar acreage is expected to be acquired in 1972.

Uinta-Wasatch. In fiscal years 1963 through 1970, an appropriation of \$160,000 was made under the Uinta-Wasatch Receipts Act of August 26, 1935, for acquiring critical watershed lands in the American Fork Canyon watershed. A total of 2,841 acres has been approved for purchase through fiscal year 1970 and an estimated 400 acres will be acquired each year during 1971 and 1972.

Toiyabe National Forest. \$8,000 was appropriated under this Act in each of fiscal years 1970 and 1971. In 1970, 60 acres of land were contracted for purchase. The 1971 and 1972 objective is to acquire 40 acres each year.

Cleveland National Forest. \$32,000 was appropriated in fiscal year 1970 to acquire important watershed lands--200 acres of land were contracted for purchase.

Angeles National Forest. \$32,000 was appropriated in fiscal year 1971 to purchase important watershed lands. Acquisition is needed to minimize erosion and flood damage. The 1971 and 1972 objective is to acquire 80 acres each year.



# ACQUISITION OF LANDS TO COMPLETE LAND EXCHANGES

Budget estimate, 1972 ..... \$26,035

## PROJECT STATEMENT

Project	:	1971	:	1972 estimated	:	Increase or decrease
Purchase of land, State of California	:	- -	:	\$26,035	:	+\$26,035

Act of December 4, 1967 (16 USC 484a) stipulates that deposits made by public school districts or public school authorities to provide for cash equalization of certain land exchanges can be appropriated to acquire similar lands suitable for National Forest system purposes in the same State as the National Forest lands conveyed in the exchanges.

In fiscal year 1970, deposits of \$26,035 were made by the North Fork Union School District, Madera County, California. It is proposed that these funds be made available for acquisition of lands in California in fiscal year 1972.

## Proposed New Language Under Existing Legislation

Following new language is proposed:

For acquisition of land in accordance with the Act of December 4, 1967 (16 USC 484a), to remain available until expended, \$26,035 to be derived from deposits by public school authorities under said Act.

This new language is necessary to make provision for financing the purchase of certain lands in California.

Present legislation stipulates that deposits made by public school districts or public school authorities to provide for cash equalization of certain land exchanges are, when appropriated, used to acquire similar lands suitable for National Forest System purposes in the same State as the National Forest lands conveyed in the exchange. In fiscal year 1970, deposits of \$26,035 were made by the North Fork Union School District, Madera County, California.









## ASSISTANCE TO STATES FOR TREE PLANTING

Appropriation Act, 1971 .....	\$1,000,000
Budget estimate, 1972 .....	1,013,000
Increase in appropriation .....	+13,000

### Adjustment to 1971 appropriation:

Appropriation Act, 1971 .....	1,000,000
Proposed supplemental for pay costs .....	13,000
Adjusted appropriation .....	1,013,000
Budget estimate, 1972 .....	1,013,000

## PROJECT STATEMENT

Project	1970	1971 estimate	1972 estimate	Increase or decrease
Assistance to States for tree planting:	\$1,014,710	\$1,071,236	\$1,013,000	-\$58,236
Unobligated balance brought forward ..	-72,946	-58,236	- -	58,236
Unobligated balance carried forward ..	58,236	- -	- -	- -
Total available or estimate .....	1,000,000	1,013,000	1,013,000	- -
Proposed supplemental appropriation :	:	:	:	:
for pay costs .....	- -	-13,000	:	:
Total appropriation .....	1,000,000	1,000,000	:	:

No increase in appropriation is proposed for the program in 1972.

The program authorized under Section 401 of the Agricultural Act of 1956 (16 USC 568e) provides for assistance to States in their forestation and tree improvement programs. Needed rehabilitation on State and county forest lands has resulted from this program.

New and expanded tree improvement programs which are partially or totally funded under this program are underway in 32 States. Assistance will emphasize seed orchard establishment aimed at the production of improved genetic quality tree seed. In excess of 3,200 acres of State-owned and operated forest tree seed orchards have been established to date under this assistance program.

Reforestation work will be carried out to restore low-yielding or nonproductive forest lands to fuller production of commercial wood. In addition, attending benefits include:

- (1) Erosion control.
- (2) Wildlife habitat improvement.
- (3) Expanded recreational land use potentials.
- (4) Environmental enhancement.

Nationally, the amount expended for tree improvement work under this program is on a State-to-Federal matching dollar basis of 3:1.

### Examples of Recent Accomplishments

Spruce-fir seed orchard program. In the Northeastern area 16 private, forest-oriented companies, three State forestry agencies (Maine, Vermont, and New Hampshire), and the Forest Service have combined their efforts under this cooperative program to establish a Spruce-fir seed orchard program. Progress to date has produced 150 superior tree selections; 85 seed lots already sown in two State forest nurseries, and several thousand 3-0 seedlings ready for use in establishing cooperative seedling seed orchards in 1971.

Black walnut and black cherry tree improvement program. Six Mid-West States (Missouri, Indiana, Illinois, Iowa, Kansas, and Kentucky) have joined in a cooperative black walnut tree improvement program. Shared tree selections, and coordinated seedling production, will facilitate providing improved genetic quality tree planting stock to State and private forest landowners and will hasten the production of this valuable commercial species throughout many Midwestern areas.

A similar project with black cherry is underway in West Virginia, Pennsylvania, New York, Vermont, and Connecticut.



The cottonwood increase project, designed to produce 600,000 cuttings of 14 improved clonal lines of cottonwood, has been successfully established at Stoneville, Mississippi. This material will be distributed to State nurseries for further increase and ultimate release to State and private tree planters. The material is recommended for use on an area up to 150 miles east and west of the Mississippi River in southern areas, and to a lesser range as it approaches the northern recommended planting limit below Cairo, Illinois.

These improved clones, on good soil, are expected to yield 50 cords of pulpwood and more than 24,000 board feet of lumber per acre in 20 years. The new strain will also be useful in urban areas because these fast-growing rust-resistant trees will quickly produce shade and screening.

#### Proposed Financing

State	FY 1970	FY 1971 (estimate)	FY 1972 (estimate)
Alabama .....	\$11,000	\$19,000	\$19,000
Arkansas .....	10,000	10,000	10,000
Colorado .....	3,200	5,000	5,000
Connecticut .....	4,000	4,000	4,000
Florida .....	33,500	29,500	29,500
Georgia .....	19,000	19,000	19,000
Hawaii .....	30,000	35,000	35,000
Idaho .....	11,000	10,000	10,000
Illinois .....	8,000	8,000	8,000
Indiana .....	6,950	12,400	12,400
Iowa .....	5,000	7,000	7,000
Kansas .....	10,400	10,000	10,000
Kentucky .....	12,000	12,000	12,000
Louisiana .....	11,500	16,500	16,500
Maine .....	15,000	15,000	15,000
Maryland .....	5,000	5,000	5,000
Michigan .....	30,000	30,000	30,000
Minnesota .....	90,000	75,000	75,000
Mississippi .....	7,000	11,500	11,500
Missouri .....	26,500	26,000	26,000
Montana .....	16,500	14,500	14,500
New Hampshire .....	7,500	10,000	10,000
New Jersey .....	12,000	12,000	12,000
New York .....	25,000	30,000	30,000
North Carolina .....	12,000	12,000	12,000
Ohio .....	14,000	14,000	14,000
Oklahoma .....	10,000	10,000	10,000
Oregon .....	95,500	80,000	80,000
Pennsylvania .....	25,000	24,000	24,000
South Carolina .....	24,500	22,000	22,000
Tennessee .....	11,100	11,100	11,100
Texas .....	14,900	14,900	14,900
Vermont .....	5,500	5,500	5,500
Virginia .....	13,000	23,000	23,000
Washington .....	95,500	81,000	80,000
West Virginia .....	4,800	9,600	9,600
Wisconsin .....	20,000	20,000	20,000
Wyoming .....	10,400	10,000	10,000
Special Projects:			
Black walnut program .....	27,700		
Cottonwood increase program .....		38,000	5,000
Total to States .....	793,950	801,500	767,500
Contingency .....	29,250	15,914	47,500
Forest Service administration .....	176,800	195,586	198,000
Total .....	1,000,000	1,013,000	1,013,000









## YOUTH CONSERVATION CORPS

NOTE: For budgetary purposes, the entire appropriation of \$2,500,000 in 1971 is shown under the Forest Service. However, one half of the appropriation (\$1,250,000) will be transferred to the Department of the Interior.

Appropriation, 1971 .....	\$2,500,000
Budget estimate, 1972 .....	- -
Decrease .....	-2,500,000

### PROJECT STATEMENT

	: 1971	: 1972 estimate	: Increase or decrease
Youth Conservation Corps .....	\$1,100,000	\$1,400,000	+\$300,000
Unobligated balance brought forward .....	- -	-1,400,000	-1,400,000
Unobligated balance carried forward .....	1,400,000	- -	-1,400,000
Total available or estimate .....	2,500,000	- -	-2,500,000

Public Law 91-378, approved August 13, 1970 authorized a pilot program designated as the Youth Conservation Corps. The Departments of the Interior and Agriculture share the program equally.

The funds appropriated in fiscal year 1971 will be obligated during the summer months of calendar year 1971. No request for funds for the summer months of calendar year 1972 is proposed at this time.

This program will be designed to provide:

- (1) Gainful employment of America's youths, ages 15 through 18, during the summer months in a healthful outdoor atmosphere.
- (2) An opportunity for understanding and appreciation of the Nation's natural environment and heritage.
- (3) Further development and maintenance of the natural resources of the United States by the youth, upon whom will fall the ultimate responsibility for maintaining and managing these resources for the American people.

The work program is designed to teach proper work habits, encourage greater appreciation of the conservation of natural resources, and to increase individual pride and dignity. Work projects will be tailored to the specific needs and abilities of the youth. There are a great variety of conservation work projects available on public lands which include recreation facilities, maintenance, and construction, wildlife habitat improvement, timber stand improvement, trail construction, and visitor information services.

Approximately 1,200 youths will be served, with around 900 in residence and 300 in non-residence. The residential program will include urban and rural youth who reside away from public lands. The size of camps vary with enrollment between 30 and 100 youths. The non-residential program includes those youth who reside adjacent to public lands.

Youth will be recruited through youth-serving organizations, such as State or local public school systems. Guidelines have been established so that the youth recruited are representative of a variety of economic, racial, and social backgrounds.







# ACQUISITION OF LANDS FOR UINTA NATIONAL FOREST

## PROJECT STATEMENT

Project	:	:	1971	:	1972
	:	1970	:	estimate	estimate
Acquisition of lands for Uinta National Forest .....	:	\$94:	\$96,800:	-	-
Unobligated balance brought forward .....	:	-\$96,894:	-96,800:	-	-
Unobligated balance carried forward .....	:	96,800:	-	-:	-
Total available or estimate .....	:	-	-:	-	-

Public Law 89-226 authorized the purchase of approximately 10,000 acres of non-Federally owned land within a described part of the Uinta National Forest in Utah for the purpose of promoting the control of floods and the reduction of soil erosion through restoration of adequate vegetative cover. \$300,000 were appropriated in fiscal year 1967.

As of June 30, 1970, 8,847 acres have been acquired at a cost of \$203,200. Lands have become difficult to acquire. It is anticipated that the remaining lands will be acquired by the end of fiscal year 1971.



# ACQUISITION OF LANDS FOR WASATCH NATIONAL FOREST

## PROJECT STATEMENT

Project	:	1970	:	1971	:	1972
	:		:	estimate	:	estimate
Acquisition of lands for Wasatch National Forest	:	\$11,876:		\$53,529:		- -
Unobligated balance brought forward .....	:	-65,405:		-53,529:		- -
Unobligated balance carried forward .....	:	53,529:		- -:		- -
Total available or estimate .....	:	- -:		- -:		- -

The Act of September 14, 1962 (PL 87-661) provided authorization for the appropriation of \$400,000 for purchase of privately owned lands within the Wasatch National Forest in Utah to aid in control of floods and to reduce soil erosion. The full amount of this authorization has been appropriated with the funds remaining available until expended.

As of June 30, 1970, approximately 12,741 acres had been approved for purchase under this authority. It is expected that the remaining lands will be acquired by the end of fiscal year 1971.





ACQUISITION OF LANDS FOR SUPERIOR NATIONAL FOREST

## PROJECT STATEMENT

Project	1970	1971	1972
		estimate	estimate
Acquisition of lands for Superior National Forest:	\$1,775:	\$30,999:	- -
Unobligated balance brought forward .....	-32,774:	-30,999:	- -
Unobligated balance carried forward .....	30,999:	- -:	- -
Total available or estimate .....	- -:	- -:	- -

The Act of June 22, 1948 (PL 80-733) as amended, provided authorization for the appropriation of \$4.5 million for the purchase of lands and improvements thereon in the Boundary Waters Canoe Area, Superior National Forest, Minnesota. The full amount of this authorization has been appropriated with the funds remaining available until expended.

This purchase program is in its final stages. The remaining balance of \$30,999 is held in reserve principally for possible excess awards for purchase cases currently in condemnation proceedings.



ACQUISITION OF LANDS FOR CACHE NATIONAL FOREST

PROJECT STATEMENT

Project	1970	1971 estimate	1972 estimate
Acquisition of lands for Cache National Forest .	\$100:	\$10,837:	- -
Unobligated balance brought forward .....	-10,937:	-10,837:	- -
Unobligated balance carried forward .....	10,837:	- -:	- -
Total available or estimate .....	- -:	- -:	- -

The 1956 Appropriation Act provided \$200,000 for the acquisition of lands in the Cache National Forest pursuant to the Act of July 24, 1956 (70 Stat. 632). Obligations under this fund are in addition to the appropriation from National Forest receipts authorized by the Act of May 11, 1938, and provided in the appropriation, Acquisition of Lands for National Forests, Special Acts. Under the 1956 Act, funds appropriated must be matched by contribution of funds or land by local agencies or persons. Explanation of this program and the accomplishments thereunder are included under the appropriation, Acquisition of lands for national forests, special acts.









## ADMINISTRATIVE PROVISIONS, FOREST SERVICE

### Changes in Language

Changes in language are proposed as follows. New language is underscored and deleted matter is enclosed in brackets.

- Appropriations to the Forest Service for the current fiscal year shall be available for: (a) purchase of not to exceed one hundred and [ninety]
- 1 seventy-one passenger motor vehicles of which one hundred and [seventy]
  - 2 fifty shall be for replacement only, and hire of such vehicles; operation and maintenance of aircraft and the purchase of not to exceed four for replacement only; . . .

Changes 1 and 2 would provide authority to purchase 171 passenger motor vehicles of which 150 will be replacements.

### PASSENGER CARRYING VEHICLES

#### Replacements

During fiscal year 1972, it is proposed that the Forest Service replace 150 passenger carrying vehicles. Of these, 145 will meet replacement standards and five will require replacement because of accidents or excessive maintenance costs.

Dependability of passenger carrying vehicles is an important factor in keeping work programs on schedule and in meeting emergencies. Vehicle breakdowns while on field travel cause disruptions and delays in field work as well as loss of effective work time of employees. The continued use of over-aged equipment is undesirable from a safety standpoint since most of it is operated over rough, narrow, winding roads in mountainous country under adverse conditions. This use generally results in excessive operating and repair expenses when vehicles reach or exceed replacement standards.

In order to maintain passenger carrying vehicles in a safe and satisfactory operating condition, it is the policy of the Forest Service to schedule periodic preventive maintenance inspections, services, and tune-ups to reduce the necessity for costly repairs and major overhauls, and to minimize lost time resulting from field breakdowns.

It is desirable to maintain a reasonable balance in the age class of the passenger vehicle inventory. The age class distribution is based upon conforming with replacement standards which recognize that some units will be retired under the age standards and others under the use standard. Prescribed replacement standards, although applicable, are not always appropriate for all Forest Service vehicles because of the wide range of operating conditions and the comparatively short field season in many of the National Forests at higher elevations. Decision on replacement of passenger vehicles which reach replacement age is based on an appraisal of each unit. This involves a review of the history record combined with a mechanical inspection of the vehicle's condition and repair liability. When such appraisal indicates that the vehicle is satisfactory for further service without unreasonable repair expenditures, it is retained and assigned to lighter work, even though such action tends to upset the age standards for the fleet inventory.



The vehicles selected for replacement are those which cannot be operated another season without excessive repair expense. They are unsatisfactory for further use both as to safety and mechanical condition. The replacement authorization requested is within the normal annual replacement standards prescribed by the General Services Administration.

Essentially all passenger carrying vehicles are pooled for use by all activities with replacement of pooled units financed from a Working Capital Fund. All appropriations reimburse this fund in ratio to use of vehicles on activities financed by the respective appropriations.

None of the replacements requested will be assigned to areas served or scheduled to be served by Inter-Agency Pools.

#### Additions

It is proposed that the Forest Service purchase 21 additional passenger carrying vehicles for the following purpose:

Twenty-one to be used as replacements or in lieu of additional one-half ton pickups and carryalls which are more expensive.

Sedans or station wagons cost less to operate and maintain than a truck. During fiscal year 1971, the Forest Service is replacing 20 light trucks, such as carryalls, pickups, panels, and sedan delivery trucks, with sedans and station wagons. The total estimated cost savings is \$7,500 per year. The substitution of 21 passenger cars for light trucks in fiscal year 1972 would result in an additional saving of about \$7,875 each year.

The Forest Service analyzes current work plans and program in determining its overall passenger carrying vehicle requirements. This analysis includes a careful study of the number of vehicles needed at each field station, using as a guiding principle the ownership of only the minimum number of dependable units required to serve programs for which funds are budgeted. Also, it is Forest Service policy to utilize Inter-Agency Motor Pools or commercial car rental services to the fullest practicable extent. Passenger car use is restricted and is integrated with various activities so as to attain good utilization of all vehicles.

Additions are financed from program funds in direct relationship to the anticipated use of the equipment. Distribution of costs to appropriations is based on analysis of use of the equipment fleet for the past three years and the estimated use for the budget year.

#### Number of vehicles

The Forest Service had a net active fleet of 894 passenger carrying vehicles at the start of fiscal year 1971. It will add 20 units during the year, making a total of 914 units available at the start of fiscal year 1972, excluding possible transfers to other agencies. It is proposed that the total number of passenger carrying vehicles be increased to 935 by the end of fiscal year 1972.

As of June 30, 1970, the age and mileage classes of the passenger carrying vehicles on hand, exclusive of 13 buses, were:



<u>Age Data</u>	
<u>Year</u>	<u>No. of Vehicles</u>
1965 and older .....	167
1966 .....	95
1967 .....	125
1968 .....	249
1969 .....	203
1970 .....	<u>134</u>
Total .....	973*

<u>Mileage Data</u>	
<u>Miles</u>	<u>No. of Vehicles</u>
60,000 and over .....	161
50,000 to 59,999 .....	85
40,000 to 49,999 .....	83
30,000 to 39,999 .....	138
20,000 to 29,999 .....	208
10,000 to 19,999 .....	150
0 to 9,999 .....	<u>148</u>
Total .....	973*

\* Includes 119 vehicles on hand awaiting disposal, and excludes 27 vehicles on order, but not received at this time.

#### Use of Vehicles

Passenger carrying vehicles are used by:

- (1) Forest officers in the protection, utilization, management, and development of the National Forests and land utilization projects and in the program for control of forest pests.
- (2) Research technicians on experimental forests, and ranges, on field research projects and forest surveys.
- (3) Foresters engaged in carrying out the laws providing for State and private forestry cooperation.
- (4) Regional office field-going administrative personnel in performing, directing, and inspecting field work.

The Forest Service is essentially a field organization and its passenger carrying vehicles are located mainly at regional, National Forest, and ranger district headquarters, and experimental forests and ranges. There are over 225 million acres within the exterior boundaries of the National Forests.

About 512 million acres of State and private forest land are included within the areas which benefit from Federal participation in the cooperative forest program. Much of this area is without common carrier service, and most forest areas and research centers are remote from commercial travel routes, requiring extensive use of motor vehicles as a means of transportation. The major portion of transportation needs, particularly at regional and forest supervisor levels and at other larger headquarters, involves multiple passenger use and can be more expeditiously and economically met by use of sedans and station wagons than by other types of vehicles.

#### AIRCRAFT

##### Replacement of Aircraft

The 1972 estimates propose replacement of four aircraft by purchase and four by transfer from other agencies as available. The Forest Service currently has 57 aircraft:



- 12 Single-engine reconnaissance and transport airplanes
- 13 Light twin-engine reconnaissance and transport airplanes
- 17 Medium and heavy cargo and transport airplanes (9 medium, 8 heavy)
- 13 T34-B lead planes (2-place scout)
- 1 Helicopter
- 1 Multi-engine airplane converted to an air tanker

The multipurpose reconnaissance and transport airplanes are used primarily to transport smokejumpers, firefighters, administrative personnel, equipment and supplies to remote and inaccessible areas where commercial services are inadequate or not available for protection and suppression of forest fires. Other use is to locate and survey timber stand and vegetation conditions such as insect infestations, blowdown, diseased areas, undesirable species, and to appraise resources and damage and evaluate effectiveness of control.

One light twin-engine airplane is modified, equipped, and used primarily for fire mapping with infrared equipment in low visibility of smoke and at night.

The multi-engine airplane obtained from the military was converted to air tanker configuration for test and evaluation project to determine if suitable for dropping retardants.

The T34-B lead airplanes are primarily single-purpose military model aircraft used by air tanker bosses to direct and control the dropping of retardants on forest fires by contract air tankers.

The helicopter is used for experimental development of techniques and equipment for direct tactical suppression of forest fires and in training Forest Service personnel in tactical use of helicopters.

The replacements requested will be primarily light and medium twin-engine airplanes. They will be utility airplanes that may be used for several purposes but primarily for providing essential service in dropping smokejumpers and paracargo and lead planes directing contract air tankers. The airplanes will be new, standard manufacture airplanes to upgrade with greater efficiency and utility some of the old military surplus aircraft currently providing essential services. These replacements will provide more effective operations with greater safety margin. The Forest Service aircraft are operated to a large extent over rough, mountainous terrain in turbulent air conditions, and from unimproved landing fields.

Medium and heavy cargo and transport airplanes are needed to meet requirements as a result of rapidly diminishing number available from supplemental air carriers and other commercial sources. The transport type may be obtained and other aircraft currently in use be replaced as newer or more suitable models and types become available from military services as excess property. Procurement would be on transfer without reimbursement and would not increase the total beyond 57 aircraft. When aircraft are partially or completely destroyed in a crash accident, they may be replaced out of any available funds.









ROADS AND TRAILS FOR STATES, NATIONAL FORESTS FUND

(Permanent appropriation)

Appropriation, 1971 .....	\$28,761,091
Budget estimate, 1972 .....	<u>32,760,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1971) .....	<u><u>+3,998,909</u></u>

The permanent appropriation of 10 percent of National Forest receipts pursuant to the Act of March 4, 1913 (16 USC 501) is transferred to and merged with the annual appropriation for Forest Roads and Trails. The explanation of the use of these funds is included in the justification for that appropriation item.



EXPENSES, BRUSH DISPOSAL  
(Permanent appropriation)

Appropriation, 1971 .....	\$12,800,000
Budget estimate, 1972 .....	14,000,000
Increase .....	+1,200,000

PROJECT STATEMENT

Project	1970	1971 estimate	1972 estimate	Increase or decrease
Brush disposal .....	\$11,375,732	\$16,130,000	\$17,380,000	+\$1,250,000
Unobligated balance brought forward .....	-16,435,771	-17,836,597	-14,506,597	+3,330,000
Unobligated balance carried forward .....	17,836,597	14,506,597	11,126,597	-3,380,000
<u>Total available or estimate ..</u>	<u>12,776,558</u>	<u>12,800,000</u>	<u>14,000,000</u>	<u>+1,200,000</u>

Timber cutting normally increases the fire hazard because of dry fuel increase in the form of logging slash. This slash may also:

- (1) Contribute to the buildup of insect populations.
- (2) Increase certain disease infestations.
- (3) Cause damage to stream channels.

National Forest timber sale contracts require treatment of debris from cutting operations or deposit of funds to pay for the work. When economical and expedient the work is performed by the timber purchaser. If it is not feasible for the purchaser to do the work, it is done by the Government, using deposits made by the timber purchaser to cover costs of the work as authorized under Section 6 of the Act of April 24, 1950 (16 USC 490).

The effect of timber cutting and the manner of treating slash vary widely among regions. In the two eastern regions, volume cut per acre is relatively low, utilization is high, and generally, humid atmospheric conditions result in rapid decomposition of debris so little slash disposal work is necessary. An exception occurs in some sales where a heavier cut per acre is made, such as the jack pine stands of Minnesota. In such areas, slash is broken up and mixed with mineral soil by disking with heavy equipment. This reduces the hazard and provides a good seedbed to aid regeneration. Treatment of slash to prevent insect epidemics is sometimes necessary in these areas.

In contrast, the cost of slash abatement on most sale areas of the West is high. High volumes per acre generally produce heavy slash. Long dry periods with much lightning and man-caused fire risk result in extremely hazardous fire potential. The warm, humid condition necessary for rapid slash deterioration seldom occurs so more intense slash disposal is required. Treatment varies greatly with different methods of cutting, but generally requires some burning to reduce volumes of slash fuels. Clear-cut areas may be broadcast burned, or debris may be cable-yarded or machine-bunched into piles which can be burned through varied weather conditions. In selectively cut areas, debris may be piled for burning over the whole area or in strips which serve as firebreaks. Fuel arrangements are planned which allow burning at times when smoke dispersal is favorable and will not influence air quality in population areas.

While slash disposal follows general prescriptions within regions, individual needs of each sale offering are planned and appraised prior to advertisement and appropriate specific requirements are incorporated into each timber sale contract. In each instance, the method used is the one which will provide





adequate resource and environmental protection of the area at the least expense. In some instances adequate protection from fire is attained by providing additional protection until the slash hazard reverts to near normal. Logging debris which may move into water courses under these conditions must be removed. Greater intensity of fire protection for several years and occasional stream clearance may be less costly than complete slash disposal immediately after cutting. In such cases, brush disposal funds are used to provide the needed manpower and facilities.



FOREST FIRE PREVENTION  
(Permanent appropriation)

Appropriation, 1971 .....	\$133,000
Budget estimate, 1972 .....	<u>135,000</u>
Increase .....	<u>+2,000</u>

PROJECT STATEMENT

Project	:	1970	:	1971	:	1972	:	Increase or decrease
Forest fire prevention .....	:	\$70,248	:	\$127,000	:	\$172,000	:	+\$45,000
Unobligated balance brought forward .....	:	-75,791	:	-114,110	:	-120,110	:	-6,000
Unobligated balance carried forward .....	:	114,110	:	120,110	:	83,110	:	-37,000
Total available or estimate .....	:	108,568	:	133,000	:	135,000	:	+2,000

The Smokey Bear licensing program is an important part of the Cooperative Forest Fire Prevention Campaign, and accomplishes its purpose through dissemination to the public of Smokey Bear's forest fire prevention message on commercial products licensed by the Chief of the Forest Service, and by support of the Smokey Bear Junior Forest Rangers, exhibits, and the Smokey Bear awards program through contribution of fees and royalties by licensees. Among the educational items presently available under this authority are books, games, bookcovers, television shows, Viewmaster reels, litterbags, children's clothing, musical recordings, and exhibits, to name a few. These items carry the forest fire prevention message to millions of Americans each year.

It is proposed to:

- (1) License Smokey Bear stationery, note pads, and other paper products.
- (2) Secure regional "jobbers" who will supply buyers with a full line of products.
- (3) Double appointments to the Junior Forest Rangers (currently 250,000 per year) and set up JFR subheadquarters in most State forester headquarters.
- (4) Design and install new interpretive displays at Smokey's home at the Washington National Zoo to increase the educational impact for over 4 million visitors per year.

Examples of Recent Accomplishments

- (1) Public service time and space donated to forest fire prevention in 1969 reached a new high of \$25.5 million, an increase of \$8 million over the preceding year.
- (2) The first National Smokey Bear Workshop was held, with 60 State, Federal, Canadian, and advertising professionals participating.
- (3) A mass media survey analyzed reports from 281 television broadcasters, 1,485 radio broadcasters and 328 newspaper editors. Reactions from these communicators will help to improve the message impact of Smokey Bear materials.



RESTORATION OF FOREST LANDS AND IMPROVEMENTS

(Permanent appropriation)

Appropriation, 1971 .....	\$35,000
Budget estimate, 1972 .....	<u>50,000</u>
Increase .....	<u>+15,000</u>

PROJECT STATEMENT

Project	: : 1970	: 1971 : estimate	: 1972 : estimate	: Increase or : decrease
Restoration of forest lands and improve- ments .....	: \$27,324	: \$35,000	: \$50,000	: +\$15,000
Unobligated balance brought forward .....	: -9,514	: -10,651	: -10,651	: - -
Unobligated balance carried forward .....	: <u>10,651</u>	: <u>10,651</u>	: <u>10,651</u>	: - -
Total available or estimate .....	: <u>28,461</u>	: <u>35,000</u>	: <u>50,000</u>	: <u>+15,000</u>

Recoveries from cash bonds or forfeitures under surety bonds by permittees or timber purchasers, who fail to complete performance of improvement, protection, or rehabilitation work required under the permit or timber sale contract, are used to cover the cost to the United States of completing such work on lands under Forest Service administration. Funds received as settlement of a claim are used for improvement, protection, or rehabilitation made necessary by the action which led to the cash settlement (Act of June 20, 1958, 16 USC 579c).



PAYMENT TO MINNESOTA (COOK, LAKE, AND ST. LOUIS COUNTIES)  
FROM THE NATIONAL FORESTS FUND  
 (Permanent appropriation)

Appropriation, 1971 .....	\$258,006
Budget estimate, 1972 .....	<u>265,000</u>
Increase .....	<u>+6,994</u>

PROJECT STATEMENT

Project	:	:	1971	:	1972	:	Increase or
	:	1970	estimate	:	estimate	:	decrease
Payment to Minnesota from the National	:	:	:	:	:	:	:
Forests Fund (total available or estimate)	:	\$257,955	\$258,006	:	\$265,000	:	+\$6,994

The Act of June 22, 1948, as amended (16 USC 577c-577h) provides that the Secretary of the Treasury, upon certification of the Secretary of Agriculture, shall pay to the State of Minnesota at the close of each fiscal year from any National Forest receipts not otherwise appropriated an amount equivalent to three-fourths of one percent of the fair appraised value of certain National Forest lands in the counties of Cook, Lake, and St. Louis situated within the Superior National Forest. The Act further provides that payment to the State shall be distributed to each of these counties in conformity with the fair appraised value of such National Forest lands in each county.





PAYMENTS TO COUNTIES, NATIONAL GRASSLANDS

(Permanent appropriation)

Appropriation, 1971 ..... \$512,500  
Budget estimate, 1972 ..... 512,500

PROJECT STATEMENT

Project	:	:	1971	:	1972	:	Increase or
	:	1970	:	estimate	:	estimate	decrease
Payment to counties (total available or	:	:	:	:	:	:	:
estimate) .....	:	\$505,888	:	\$512,500	:	\$512,500	- -

At the end of each calendar year, 25 percent of the revenues from use of submarginal lands are paid to counties under the provisions of Title III of the Bankhead-Jones Farm Tenant Act, approved July 22, 1937 (7 USC 1012). Payments are made on the provision that they are used for school or road purposes, or both.



PAYMENTS TO SCHOOL FUNDS, ARIZONA AND NEW MEXICO

(Permanent appropriation)

Appropriation, 1971 .....	\$84,338
Budget estimate, 1972 .....	<u>100,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1971) .....	<u>+15,662</u>

PROJECT STATEMENT

Project	: 1970	: 1971 estimate	: 1972 estimate	: Increase or decrease
Payments to school funds (total available or estimate) .....	\$124,709	\$84,338	\$100,000	+\$15,662

Under provisions of the Act of June 20, 1910 (36 Stat. 562, 573) certain areas within National Forests were granted to the States for school purposes. The percentage that these lands are of the total National Forest area within the State is used in determining payments to the States. The receipts from all National Forest land within the State are used as the basis for applying the percentage. For example, if total receipts for the State are \$100,000 and if 10 percent of lands are in the "granted for school purposes" category, the payment to the State would be \$10,000. The amounts so paid are deducted from the net receipts before computing the 25 percent payments to States.

As soon after the close of the fiscal year as the receipts from National Forests and the area of school lands in the States of Arizona and New Mexico are determined, the payments are made to the States. Payments in fiscal year 1971 to Arizona were \$83,644 and to New Mexico \$694.



PAYMENTS TO STATES, NATIONAL FORESTS FUND

(Permanent appropriation)

Appropriation, 1971 .....	\$71,896,615
Budget estimate, 1972 .....	<u>81,891,250</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1971) .....	<u>+9,994,635</u>

PROJECT STATEMENT

Project	:	1970	:	1971 estimate	:	1972 estimate	:	Increase or decrease
Payments to States (total avail- able or estimate) .....	:	\$78,012,921	:	\$71,896,615	:	\$81,891,250	:	+\$9,994,635

The Act of May 23, 1908, as amended (16 USC 500) requires, with a few exceptions, that 25 percent of all money received from the National Forests during any fiscal year be paid to the States in which the forests are located, for the benefit of public schools and public roads of the county or counties in which such National Forests are situated. The amount of this appropriation varies each year in direct proportion to National Forest receipts during the previous fiscal year.

The amounts set aside from receipts collected from the sale of National Forest timber, grazing, special use permits, power, mineral leases, and admission and user fees, before the 25 percent is applied are listed below:

1. Payment to the State of Minnesota covering certain National Forest lands in the Counties of Cook, Lake, and St. Louis situated within the Superior National Forest is made under the terms of the Act of June 22, 1948, as amended (16 USC 577c-577h). Receipts collected from the areas covered by this Act are excluded when the 25 percent payment to the State of Minnesota is computed.
2. For lands in certain counties in Utah, Nevada, and California, the States receive 25 percent of receipts only after funds, if made available by Congress, have been set aside for the acquisition of National Forest lands within the specified National Forests under the terms of special acts authorizing appropriations from forest receipts for this purpose.
3. Payments to the States of Arizona and New Mexico under the provisions of the Act of June 20, 1910 (36 Stat. 562, 573), of shares of the gross receipts from the National Forests in those States which are proportionate to the areas of land granted to the States for school purposes within the National Forests.









## WORKING CAPITAL FUND

The Working Capital Fund was established by the Act of August 3, 1956 (16 USC 579b), as amended by the Act of October 23, 1962, (16 USC 579b). It is a self-sustaining revolving fund which provides services to National Forests, Experiment Stations, and when necessary, to other Federal agencies, and as provided by law to State and private agencies and persons who cooperate with the Forest Service in fire control and other authorized programs.

The following services were provided by the Working Capital Fund in fiscal year 1970:

1. Equipment service.--This service owns, operates, maintains, and replaces approximately 13,500 pieces of common use motor driven and similar equipment. This equipment is rented to a total of 146 administrative units, i.e., National Forests, Experiment Stations and other units, and in some cases to other agencies, at rates which recover the cost of operation, repair and maintenance, management, and depreciation. The rates also include an increment which provides additional cash which when added to depreciation earnings and the residual value of equipment provides sufficient funds to replace the equipment. This service operates 93 repair shops.
2. Aircraft service.--This service operates and maintains 57 Forest Service owned aircraft used in fire surveillance and suppression and in other Forest Service programs. The aircraft are based at 16 locations and are rented to National Forests, Experiment Stations, and in some cases to other agencies, at rates which recover the cost of operation, maintenance, repair, and improvements in the airworthiness of the aircraft. Replacement costs and the costs of additional aircraft are financed prorata by benefiting Forest Service appropriations. This service operates three aircraft maintenance shops.

3. Supply service.--This service operates the following common services:

Central Supply.--This service has two locations for procurement, warehousing, and supply of common use items, such as work project tools, provisions, and supplies. Grass seed is procured, stored and issued from two other locations. Issuances and sales are made to National Forests, Experiment Stations, and others at prices which recover cost.

Photo reproduction.--Six photo reproduction laboratories store, reproduce, and supply aerial photographs, aerial maps, and other photographs of National Forest lands. The photographic reproductions are sold to National Forests, Experiment Stations, and others at cost.

Sign shop.--These include 7 small shops which manufacture and supply special signs for the National Forests for use in regulating traffic and as information to the public and other users of the National Forests. The signs are sold to National Forests and Experiment Stations at cost.

Subsistence.--There are 27 facilities which prepare and serve meals at cost to Forest Service work crews working in remote areas where adequate public restaurant facilities are not available.

Cribbing.--This facility is located on the Angeles National Forest, California, to manufacture special concrete structural material used in embankments for erosion control purposes along access roads in the National Forests. This material is sold to National Forests at prices which recover costs.

4. Nurseries.--This service operates 13 forest tree nurseries and cold storage facilities for storage of tree and seed stock and one seed extractory. Tree seed is procured, cleaned, bagged, and stored in refrigerated facilities. Tree and seed stock is sold to National Forests, States, and other Federal agencies at cost.



Volume of Business for the Various Major Activities  
of the Working Capital Fund  
(In thousands of dollars)

	1970 <u>Actual</u>	1971 <u>Estimate</u>	1972 <u>Estimate</u>
Equipment service .....	\$20,863	\$22,593	\$23,545
Aircraft service .....	974	1,057	1,098
Supply service .....	2,987	3,285	3,304
Nursery service .....	<u>2,752</u>	<u>2,877</u>	<u>2,939</u>
Totals .....	27,576	29,812	30,886

The Working Capital Fund requires no cash appropriation. Initially, its assets were purchased by regular Forest Service appropriations and were donated to the fund. Where expansion of facilities is required that expansion is financed by Forest Service regular appropriations and the resulting assets are donated to the fund.

The objective over the long run is to operate the fund on a break-even basis, i.e., with income and costs approximately equal. However, certain earnings in excess of current costs are required to enable the fund to replace its large equipment fleet with modern, up-to-date equipment in a rising economy. These earnings are needed to meet future increased costs of equipment. They are not excess to the needs of the fund since some have been invested in equipment and the remainder is needed to cover future increased costs of equipment.

The following is a condensed "Statement of Financial Condition" at the close of fiscal years 1969 and 1970, and as estimated at the close of fiscal years 1971 and 1972, after considering the impact of transactions for those two years:

Condensed Schedule  
Statement of Financial Condition as of June 30  
(In thousands of dollars)

	1969 <u>Actual</u>	1970 <u>Actual</u>	1971 <u>Estimate</u>	1972 <u>Estimate</u>
<u>Assets</u>				
Balance of cash and other current assets after deducting liabilities to be paid .....	\$6,661	\$6,388	\$7,508	\$8,738
Deferred charges .....	12	22	13	14
Inventories .....	6,293	6,430	6,430	6,430
Fixed assets, net .....	<u>29,499</u>	<u>31,155</u>	<u>33,162</u>	<u>35,467</u>
Net assets .....	<u>42,465</u>	<u>43,995</u>	<u>47,113</u>	<u>50,649</u>
<u>Government Equity</u>				
Donated capital .....	33,724	35,209	36,386	37,859
Retained earnings .....	<u>8,741</u>	<u>8,786</u>	<u>10,727</u>	<u>12,790</u>
Total Government Equity .....	<u>42,465</u>	<u>43,995</u>	<u>47,113</u>	<u>50,649</u>

An analysis of retained earnings for each of the four years follows:



Analysis of Retained Earnings  
(In thousands of dollars)

	Through 6/30/69	Through 6/30/70	Through 6/30/71	Through 6/30/72
Earnings invested in equipment .....	\$7,984	\$8,376	\$9,777	\$11,790
Earnings reserved for future equipment acquisitions .....	<u>757</u>	<u>410</u>	<u>950</u>	<u>1,000</u>
Total earnings .....	<u>8,741</u>	<u>8,786</u>	<u>10,727</u>	<u>12,790</u>

The following "Statement of Proceeds Realized and Used" shows the same estimated increase of working capital--\$273,000 for 1970, \$1,120,000 for 1971, and \$1,230,000 for 1972--as is shown on the condensed statement of financial condition. This increase is required to finance the increased cost of fleet equipment purchases.

This statement shows the requirements of each Working Capital Fund activity and demonstrates how closely the proceeds realized by each activity are used by that activity for operating expenses and purchase of equipment and, in the case of the Equipment Service, to provide working capital for future increased cost of equipment purchases over the original cost of the equipment to be replaced.

Statement of Proceeds Realized and Used  
(In thousands of dollars)

	1970 <u>Actual</u>	1971 <u>Estimate</u>	1972 <u>Estimate</u>
1. <u>Equipment Service</u>			
Proceeds realized from:			
Operations .....	\$20,863	\$22,593	\$23,545
Sale of equipment .....	<u>1,391</u>	<u>1,397</u>	<u>1,343</u>
Total proceeds realized .....	<u>22,254</u>	<u>23,990</u>	<u>24,888</u>
Proceeds used for:			
Purchase of equipment .....	6,794	7,207	7,336
Expenses .....	<u>15,984</u>	<u>15,973</u>	<u>16,600</u>
Total proceeds used .....	<u>22,778</u>	<u>23,180</u>	<u>23,936</u>
Excess of proceeds realized .....	- -	810	952
used .....	<u>-524</u>	<u>- -</u>	<u>- -</u>
2. <u>Aircraft Service</u>			
Proceeds realized from operations .....	<u>974</u>	<u>1,057</u>	<u>1,098</u>
Proceeds used for:			
Purchase of equipment .....	2	27	- -
Expenses .....	<u>876</u>	<u>1,006</u>	<u>997</u>
Total proceeds used .....	<u>878</u>	<u>1,033</u>	<u>997</u>
Excess of proceeds realized .....	<u>96</u>	<u>24</u>	<u>101</u>
3. <u>Supply Service</u>			
Proceeds realized from operations .....	<u>2,987</u>	<u>3,285</u>	<u>3,304</u>
Proceeds used for:			
Purchase of equipment .....	48	12	80
Expenses .....	<u>3,116</u>	<u>3,132</u>	<u>3,154</u>
Total proceeds used .....	<u>3,164</u>	<u>3,144</u>	<u>3,234</u>
Excess of proceeds realized .....	- -	141	70
used .....	<u>-177</u>	<u>- -</u>	<u>- -</u>



	1970 <u>Actual</u>	1971 <u>Estimate</u>	1972 . <u>Estimate</u>
4. <u>Nurseries</u>			
Proceeds realized from operations .....	<u>2,752</u>	<u>2,877</u>	<u>2,939</u>
Proceeds used for:			
Purchase of equipment .....	26	1	6
Expenses .....	<u>2,394</u>	<u>2,731</u>	<u>2,826</u>
Total proceeds used .....	<u>2,420</u>	<u>2,732</u>	<u>2,832</u>
Excess of proceeds realized .....	<u>332</u>	<u>145</u>	<u>107</u>
Total excess of proceeds, all Service:			
Realized .....	- -	1,120	1,230
Used .....	<u>-273</u>	<u>- -</u>	<u>- -</u>
Cash: Reduction .....	-2,032	- -	- -
Increase .....	- -	1,159	1,102
Other Working Capital: Reduction .....	- -	-39	- -
Increase .....	<u>1,759</u>	<u>- -</u>	<u>128</u>









## COOPERATIVE WORK, FOREST SERVICE (TRUST FUND)

Contributions are received from cooperators, including counties, States, timber sale operators, individuals, and associations, and are expended by the Forest Service in accordance with the terms of the applicable cooperative agreements. The work consists of protection and improvement of the National Forests, work performed for National Forest users, and forest investigations and protection, reforestation, and administration of private forest lands.

The major programs conducted under this account are described below in terms of the projects reflected in the statement at the end of this section.

1. Construction and Maintenance of Roads and Trails, and
2. Construction and Maintenance of Other Improvements.

Under the Acts of June 30, 1914 (16 USC 498) and March 3, 1925, April 24, 1950 (16 USC 572) and October 13, 1964 (16 USC 537) deposits for cooperative work are accepted from State and local government agencies, associations, Federal timber purchasers, users of roads, and others for the construction and maintenance of roads, trails, and other improvements and for performing work which is the National Forest users' responsibility, this method of performance of the work being of mutual benefit or of benefit to the public at large. Cooperative deposits received for wildlife habitat improvement for States from their hunting and fishing fees are included in this activity.

3. Protection of National Forest and Adjacent Non-Federal Lands. The Act of June 30, 1914 (16 USC 498) authorizes the acceptance of contributions for the protection of the National Forests and the Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572), authorizes the acceptance of deposits for the protection of non-Federal lands in or near the National Forests. The major portion of the obligations is for the protection of private lands from fire. This arrangement helps both parties since there are millions of acres of non-Federal forest land intermingled with Federal ownership on the National Forests. The lands in non-Federal ownership are usually in small tracts. It would be uneconomical for the owner to set up a fire control organization for the protection of his land. The advantage to the Government is that in many cases it would be necessary to suppress the fires on the non-Federal land without reimbursement in order to protect the adjoining Federal land.
4. Sale Area Betterment (including reforestation). Section 3 of the Act of June 9, 1930 (16 USC 576b) provides for deposits of funds by timber sale purchasers to cover the cost of reforestation and special cultural measures to improve the future stand of timber on the areas cutover by the purchaser. Accomplishments under this program are reported under the Forest land management subappropriation along with accomplishments for reforestation and stand improvement for that subappropriation.
5. Scaling. Under provisions of the Act of April 24, 1950 (16 USC 572) and of Section 210 of the Act of September 21, 1944 (16 USC 572a) acceptance of deposits from timber purchasers for cooperative scaling service is authorized. Such arrangements are established only when requested by the operator and when the operator pays the extra cost of such services, either in advance or through reimbursement under appropriate payment guarantees.
6. Research Investigations. The Acts of June 30, 1914 (16 USC 498) and May 22, 1928 (16 USC 581i-1) authorize the acceptance of deposits for forestry research. Deposits are received from State and other public agencies, and from industrial, association, and other private agencies to finance research projects of mutual interest and benefit to both parties. The deposits may



be made either in a single sum or on a continuing basis, and may either partially or wholly cover the cost of the research. The cooperative research projects may involve any aspect of forestry and vary widely as to scope and duration. A very common example of such cooperation is for a State to make a deposit to the Cooperative work fund in order to intensify or to speed up completion of a comprehensive survey of the forest resources of the State. Other examples are State contributions toward forest fire research. The results of such cooperative investigations are made available to the general public as well as to the depositor.

7. Administration of Non-Federal Lands. The Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572) authorizes the acceptance of deposits for the administration of non-Federal lands. These deposits are made by non-Federal owners having land intermingled with or adjacent to National Forests who wish these lands managed in accordance with good forest management practices. Their holdings are usually too small to warrant the employment of professional foresters to administer such tracts. The advantages to the Government include the avoidance of possible high fire hazard areas resulting from improper cutting practices, the elimination of the necessity of precisely marking the boundaries of the private land, and additional private forest land handled under proper forest practices.
8. Reforestation (private lands). The Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572) authorizes the acceptance of deposits for reforestation of non-Federal lands situated within or near a National Forest. This work is limited to areas of non-Federal land within a planting project on the National Forests or to areas in which certain civic and other public-spirited organizations have taken an interest.
9. Statement on Utilization of Funds. Following is a statement of funds received and obligated and balances available by major activities:



COOPERATIVE WORK, FOREST SERVICE--Trust Fund

Project	Actual Fiscal Year 1970			Estimate Fiscal Year 1971			Estimate Fiscal Year 1972		
	Balance Available June 30, 1969	Funds Received	Obligations	Balance	Funds Received	Obligations	Balance	Funds Received	Obligations
1. Construction and maintenance of roads and trails .....	\$5,045,155	\$6,114,125	\$6,030,033	\$5,129,247	\$7,000,000	\$7,699,000	\$4,430,247	\$7,000,000	\$7,719,000
2. Construction and maintenance of other improvements .....	500,435	701,080	697,315	504,200	800,000	950,000	354,200	800,000	950,000
3. Protection on National Forests and adjacent private lands:									
(a) Fire .....	616,039	1,138,844	1,306,486	448,997	1,200,000	1,325,000	323,997	1,200,000	1,325,000
(b) Other .....	2,114,012	1,587,369	1,659,870	2,041,511	1,799,000	2,100,000	1,740,511	2,049,000	2,275,000
4. Sale area betterment on National Forest lands (including reforestation) ...	48,689,287	26,754,572	25,079,858	50,564,001	32,000,000	32,620,000	49,944,001	32,000,000	34,620,000
5. Scaling of timber .....	263,043	954,386	977,804	239,625	1,100,000	1,100,000	239,625	1,100,000	1,100,000
6. Research investigations .....	370,010	762,425	861,912	270,523	800,000	975,000	95,523	800,000	800,000
7. Administration of private lands .....	20,464	29,046	28,284	21,226	30,000	30,000	21,226	30,000	30,000
8. Reforestation (private lands).	102,887	14,451	22,411	94,927	20,000	70,000	44,927	20,000	50,000
9. Development, administration, and operation of the Robert S. Kerr Memorial Arboretum and the Cradle of Forestry ..	860	-	845	15	1,000	1,000	15	1,000	1,000
Subtotal .....	57,922,792	38,056,299	36,664,818	59,314,272	44,750,000	46,870,000	57,194,272	45,000,000	48,870,000
Advanced to FOREST PROTECTION AND UTILIZATION for fighting forest fires .....									
Total .....	57,922,792	38,056,299	37,664,818	58,314,272	44,750,000	45,870,000	57,194,272	45,000,000	48,870,000

NOTE: Balances carried forward are due primarily to necessity of deferring work for which funds are deposited until the most practicable time for accomplishment. For instance, funds for sale area betterment are received in advance of timber cutting, but work cannot be started until cutting operations are completed. The time lag sometimes extends for several years, depending on the amount of preparatory work required in the sale area and weather conditions.

Above obligations for 1970 include: (1) Transfers to National Forests Fund of earned sale area betterment deposits in excess of obligations for sale area betterment work ..... \$337,124  
 (2) Refunds to cooperators ..... 234,630  
 571,754







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